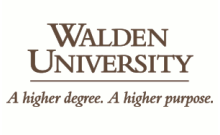

2020

Patient Risks and Clinical Care Disruptions in Rural Hospital Mergers

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2020

Abstract

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by

Gabriel Muzanenhamo

MS, Healthcare Administration Walden University, 2016

BS, Healthcare Administration, Kaplan University, 2014

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

Walden University

May 2020

Abstract

Over 440,000 U.S. citizens are dying annually from avoidable, hospital-associated adverse events, with rural inhabitants experiencing more significant health threats than any other group in the United States. The trend of large health systems acquiring and consolidating rural hospitals (RHs) to improve the coordination of clinical care is backfiring, and accumulating patient safety risks. Although arguments for supporting hospital mergers in the past have focused on efficiency and presented a chance for struggling RHs with a financial survival mode, limited research has explicitly examined the impact of rural hospital mergers (RHMs). This study was constructed to explore the relationship between rural communities and hospital mortality through conducting a performance comparison of RHs post mergers. The theoretical perspective for this study was grounded on Donabedian's quality improvement model. Logistic regression was used to examine various hospital performance measures and to assess the potential association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients post mergers. Unlike previous reports, the results of this study demonstrated that RHMs are correlated with increased clinical care disruptions, as well as higher admissions, and inpatient mortality rates. The results of this study could make substantial contributions to the field of healthcare administration and may result in significant social change through recognizing the rural population as a separate group in research, analyzing patient risks affecting this group, and comparing them with other factors that contribute to the disparity of accessing the quality of care and mortality rates, which will significantly remedy clinical challenges.

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Dedication

My study work is and foremost dedicated to the God of Israel, my protector, and my guide. Without this omniscience power and ever-present love from my God, I could not have reached this far. To my wife Patricia and my six children, Shimon, Moshe, Diligence, Bethany, Kaylah and Prisca, I sincerely acknowledge your passion for excellence, and indeed, your patience with me during this journey has been encouraging. Finally, to my dear parents who have been the beacon of support, instruction and wisdom in my life since the day I was born, I can vividly testify that you are the foundation of this work.

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With respect to the commitment, encouragement and instrumental efforts shown by my committee to ensure my research study was completed, I wish to offer my sincere thanks to Dr. Anderson (Chair), Dr. Bewley (Committee Member) and Dr. Onyejekwe (University Reviewer) To my family and to the entire congregation of Israel -House of Peace, your prayers and emotional support have been a guide and provider of invaluable wisdom in this journey. More importantly, He who does not sleep, nor slumber-The Almighty God has made it possible.

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Section 1: Foundation of the Study and Literature Review

Introduction

The world of the U.S. healthcare system is experiencing many wave changes, among them the trend for rural hospitals to be taken over by sizeable hospitals that are part of larger healthcare systems (Henke et al., 2016; Rural Health Reform Policy Research Center (RHRPRC), 2014). The broad pattern of large health systems acquiring and consolidating rural hospitals may contribute to increased rates of mortality, and hospitalizations for rural patients with conditions, such as cancer, asthma and pneumonia, which are preventable if patients receive the appropriate and convenient quality of care (Hass, Gawande, & Reynolds, 2018). The absorption of rural health systems also may be at least partially responsible for the higher incidence of other chronic health conditions, such as hypertension, heart disease and emphysema, among rural residents (Holmes, 2015). A recent collaborative study by researchers from the Harvard-Affiliated Health Systems identified hospital mergers and affiliations as an emerging area of patient risks emanating from critical sources such as new patient populations, unfamiliar infrastructure and unique setting for clinicians (Hass et al., 2018) While there are no indications that the pace of hospital and health system alliance and acquisitions will diminish, there has been little attention paid to patient safety in rural hospital mergers (RHMs), which account for up to roughly half of all U.S. hospitals (Brown et al., 2016).

Since the execution of the Affordable Care Act of 2010, there has been a quick surge of hospital consolidations- mergers and acquisitions (Pope, 2014). A recent analysis by Hall (2018) revealed that 30 hospital and health system partnership

transactions were completed in the first quarter of 2018, which is up more than 11% from the first quarter of 2017. Williams Jr, Thomas, Howard, and Pink (2018) described the number and geographic distribution of 380 RHMs from 2005 through 2016 in over 24 U.S. states as significant, with potential concerns fueled by cost pressures, technological advances, and patient demands.

Although such trends are substantial, they do not capture the full extent or impact of the affiliations of rural health systems on the quality of care after such mergers have occurred. As U.S. rural healthcare continues to transform across the country, the North Carolina (NC) RHRPRC (2014) predicted that over 700 more hospitals that are rural are at risk of either being taken over or closed within the next 10 years. Despite playing the leading role in the provision of various types of health services to 60 million U.S. citizens, hospitals in the rural United States face a unique set of challenges and are often coerced to make difficult decisions where patient safety may be compromised (American Hospital Association [AHA], 2018).

Advocates for hospital mergers often present one side of the argument: alliances are necessary to lower costs and improve efficiency and access to care. Noether and May (2017) reported that when healthcare organizations begin planning about mergers or acquisitions, network development leaders — whose experience is business oriented and not in medicine — tend to be at the forefront of the dialogues. Perhaps, healthcare executives with little proficiency in patient safety are customarily responsible for executing healthcare mergers and acquisitions (Haas et al., 2018). Because the incentive is often financial rather than clinical, the goals and responsibilities for patient safety and

quality of care are often overlooked (see., Haas et al., 2018; Kaufman et al., 2016). Nevertheless, system expansions or mergers can increase market power and broaden the capacity of health services to patients, at least in the short term; however, without planning, such changes can cause significant patient risks and may also create a set of other challenges such as increases in medical malpractice, delays in treatments, fines, and penalties (Johar, & Savage, 2014). Although healthcare organizations have invested vast sums of money in mergers and acquisitions, the quality of care provided after such consolidations frequently falls far short of what is optimal (Noles, Reiter, Sheps, & Boortz-Marx, 2015).

By focusing on four aspects of leveraging organizational synergies: (i.e. change management, governance mechanisms, system integration best practices, and the role of clinical leadership), I sought to add the knowledge needed to promote the adoption of the patient safety culture model in RHMs. This investigation was anticipated to fill a gap in the literature by exploring the correlational of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients. Trying to discern the relationship between rural communities, and hospital mortality through conducting a performance comparison of RHs post mergers could prompt policymakers to identify strategies for future quality improvement efforts that narrow identified gaps. Such specifics would not only allow policymakers to better prioritize the best integration practices likely to improve quality of care but would begin a new era towards a more comprehensive redesign of better care pathways that would reduce mortality rates in rural communities.

In this study, I investigated the aspects of patient risks and CCDs in RHMs. While different scholars have studied issues of patient risks and clinical discourse, not much attention has been placed on how RHMs contribute to the patient risks and clinical discourse. This first section of this study comprises the introduction, background to the problem statement, purpose of the study, significance of the study, theoretical foundation for the study, definition of terms, nature of the study, secondary data types and sources of information, a literature review related to critical variables and/or concepts, definitions, research questions and associated hypotheses, assumptions, scope and delimitations, and a summary.

Background of the Study

Unsafe healthcare is always one of the challenges of the U.S. healthcare delivery system and a well-recognized health issue, usually listing among the top three causes of deaths in the United States, with rural residents experiencing more significant hardship (NC RHRPRC, 2014; Taylor, 2019). As the broad trend of large health systems acquiring and consolidating rural hospitals is expected to continue, serious questions about the impact the mergers will have on access to high-quality health care services in U.S. rural communities have been raised (Hass et al., 2018). Infrastructure changes and organizational complexities from healthcare system mergers not only can challenge clinicians but can cause risk to patients (Noles et al., 2015). The idea that merging healthcare systems and processes may be deceptive and yield medical errors and harm patients is not a new phenomenon.

Recent estimates suggest that approximately 97% of U.S. landscape belongs to rural counties, and 60 million people (roughly 19.3% of the population reside in these areas (U.S. Census Bureau, 2016). According to the Centers for Disease and Prevention Control (CDC), an estimated 40% of rural residents reported missing a usual source of care, of which 15% indicated travel to the next hospital or financial reason for requiring regular access to quality of care (CDC, 2017). These numbers are also elevated among racial and ethnic minority groups compared with White populations (CDC, 2013). Among the crisis of access, equity, economic complexities, and shortages of providers, a disproportionate number of rural hospitals across the United States are modified through mergers and acquisitions (NC RHRPRC, 2014; Noles et al., 2015).

While numerous proposals to improve the U.S. rural delivery services have been initiated, substantial differences across a range of quality domains remain for rural residents compared with urban and suburban counterparts (Ely, & Hoyert, 2018). Even though previous studies have shown some anticipated benefits of hospital mergers (e.g. improved financial performance, service consolidation, and operating efficiencies), there has been less progress in improving quality, and reducing health inequities and mortality rates (Noles et al., 2015).

Even though much is known about the financial influence of health system mergers and acquisitions, there has been little evaluation of the CCDs and patient safety risks (PSRs) that hospital mergers and acquisitions have on rural patients. The recent decline in life expectancy, the recent increase in chronic disease deaths, and the widespread of other diverse chronic disease morbidity and mortality in the rural United

States, with substantial differences in quality domains, raise the issue of whether RHMs are addressing the health of its rural population effectively (Crossman et al., 2017; Health Resources & Services Administration, 2017; Kessler, & Alverson, 2013).

Problem Statement

In the United States, approximately 60 million people live in rural communities, including millions of Medicare and Medicaid beneficiaries (AHA, 2018). Nearly 1 in 5 U.S. citizens who live in rural areas rely heavily on rural hospitals as the cornerstone of their health system during emergencies and disasters (Abuse & Administration, 2016). Because such hospitals care for most seniors with complex chronic diseases, such as diabetes, cancers, strokes, and lower respiratory complications, these institutions encounter regulatory and financial pressures that increase vulnerability to cutbacks and patient safety risks (CDC, 2017). The American Academy of Family Physicians (2015) noted several challenges that rural U.S citizens face, including living in communities with disproportionally higher famine rates, having more chronic conditions, being uninsured, experiencing a disintegrated healthcare delivery system with a shrinking health workforce, and lacking access to high-quality health care services.

The number of RHMs has increased significantly in recent years. This broad pattern of large health systems acquiring and consolidating rural hospitals is expected to continue, raising questions about the impact the mergers will have on access to high-quality health care services in rural communities. According to Kaufman (2018), healthcare organizations announced a total of 115 transactions in 2017, representing a 13% surge compared to the previous year. From 2005 to 2016, more than 380 rural

hospitals in the United States were merged, and the activities have affected the delivery and availability of services as joining hospitals work toward greater efficiency in cost control (Williams Jr et al., 2018).

As the rural healthcare system is abruptly consumed through mergers, the aftershock creates permanent gaps in access to quality of care between rural and urban U.S. citizens (Kaufman et al., 2016; Worek, 2017). Numerous studies have highlighted that rural patients with complex chronic illnesses have shown worse patient outcomes than their urban counterparts (CDC, 2013; Unger et al., 2018). McCullough and Flowers (2018) noted inferior mortality and life expectancy rates for the rural United States, with the most substantial disparities gap noticed in access to quality of care and patient safety risks. Noles et al. (2015) reported that high inpatient mortality in state hospitals in California was positively associated with hospital mergers. Previous studies have shown that there is the potential for both positive and negative effects on patients, communities, and employees (Johar, & Savage, 2014; Noles et al., 2015). However, when health systems integrate, the work processes and organizational culture; recruitment structure of physicians, nurses, and other healthcare providers, as well as the overall delivery of healthcare within the merged entity, changes (Vogel, & Hadfield, 2017).

Increasing evidence suggests that 440,000 U.S. citizens are dying annually from the poor quality of care in the hospital settings, and rural inhabitants experience more significant health threats than any other group in the United States (James, 2013). Moy, Garcia and Bastion (2017) expressed that preventable deaths were about 50% higher in rural areas, partly because of higher risk due to lengthy trips to specialty and urgent care

or other social, demographic, and economic factors (see Liu, Singer, Sun, & Camargo, 2011). Adding to these statistics, the U.S. National Vital Statistics Systems [NVSS] (2017) reported that the newborn death rate is more than 25% higher in rural communities compared to metropolitan areas. Rural U.S. citizens are more likely to die from potentially preventable health threats than their urban counterparts (CDC, 2017). The US Census Bureau (2016) further asserted that there had been significant rural-urban health disparities in mortality rates, life expectancy, the incidence of diseases, and morbidities. The noticeable gap in health between rural and urban U.S. citizens shows that lower quality of care is one of the most pressing patient safety concerns, specifically in RHMs, that is demanding more leadership and action (NC RHRPRC, 2014).

Patient risks and CCDs could be the probable foremost reason for the discrepancy in both adult and infant mortalities in rural areas (U.S. NVSS, 2017). The exact scope of the problem is displayed by the fact that more than 65%, which is approximately 286,000 deaths each year in rural communities, are entirely preventable (Agency for Healthcare Quality and Research [AHQR], 2018; Ely et al., 2018). Arguably, the noticeable gap in health between urban and rural communities is not something new, particularly to the U.S. healthcare system (Moscovice, Johnson, & Burstin, 2017). However, various researchers have highlighted this worsening gap between health outcomes in urban and rural inhabitants of the United States (James et al., 2017; Noles et al., 2015; Unger et al., 2018). Nevertheless, between 2005 and 2016, more than 380 RMH transactions have been completed nationwide, with little data reported on the clinical impact of the mergers, or the impact on access to care within rural communities. Although much is

known about the financial effects of hospital mergers, research shows partnerships and transactions might create a permanent gap, which leaves perpetual patient risks and clinical disruptions (American's Health Insurance Plans, 2014; American Health Information Management, 2012; Hayford, 2011; Jennings, 2008; Johar et al., 2014; Noether, & May, 2017). Among other challenges, such as long distances between health care facilities and trauma centers; cost of access to specialized care, and patient risks-related to changes in patient populations, infrastructure, and clinical practice settings, the responsibility for safety and quality when entities merge may be unclear (Capps, Dranove, & Ody, 2018; Haas et al., 2018; Henke et al., 2016). Perhaps, the interruption induced by integrating two independent facilities may negatively impact quality, particularly in the immediate aftermath of the merger (Hayford, 2011).

Purpose of the Study

In this study, I employed a quantitive approach to describe patient risks and disruptions of clinical care in RHMs. The principal objective of this correlational study was to examine the potential association of healthcare transformation change, in structures, processes, organizational culture, and values on clinical outcomes for rural patients during mergers. A secondary goal of the study was to enhance the understanding of the incidence of patient risks and clinical turbulence after mergers as a basis to reduce them. To date, while many studies have focused on the association between hospital consolidation and the financial aspects, no previous studies have been conducted to explore or identify particular areas where system complexities handicap or delay the adaption of a holistic patient safety culture in RHMs (Noles et al, 2015). To bridge this

gap in the published literature, I focused on three aspects of leveraging organizational synergies: governance mechanisms, system integration best practices, and the role of clinical leadership.

Using the Medicare Mortality Ratings Databases, Hospital Compare, and Hospital Evaluation Databases, which tracked mergers in rural hospitals in the United States from 20102018, in this study I specifically assessed the performance of rural hospital alliances regarding structures, processes, and outcomes and evaluated the correlation between quality domains. I used the patient outcome measures of mortality and readmission rate to study the effects of hospital alliances on quality of care. Understanding the relationship between hospital mortality and the potential performance comparisons of rural hospitals post mergers could prompt policymakers to identify opportunities for future quality improvement efforts that narrow identified gaps.

Significance

I anticipated that the findings of this study would fill a gap in the literature by focusing on the relationship of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients. Trying to understand the relationship that exists between rural communities and hospital mortality through conducting a performance comparison of RHs post mergers could prompt policymakers to identify opportunities for future quality improvement efforts that narrow identified gaps. By defining quality improvement initiatives and, facilitating this kind of feedback and discussion, the findings of this study may present healthcare legislators with potential tools to highlight low points in patient care of which the U.S. healthcare

system may not have previously been aware (see Institute of Medicine [IOM], 2012; Manghani, 2011).

The results of this study could make substantial contributions to the field of health care administration and may result in significant social change through recognizing rural the population as a separate group in research, analyzing patient risks impacting this group and comparing them with other factors that attribute to the disparity of accessing quality of care and mortality rates, which will significantly remedy clinical challenges and improve patient safety (see Ackerman et al., 2018; James et al., 2017; Khalil et al., 2017). Various network developmental leaders, practitioner administrators, and policymakers could look at the findings of this research study to identify effective integration practices for hospital mergers. In addition to achieving better quality of care and minimizing preventable deaths, improvement in clinicians' engagement in hospital consolidations may sustain continuity of care and provide more opportunities for financial stability in the rural healthcare system.

Framework of the Study

The conceptual framework for this study was grounded on Donabedian's (2005) theory of epistemological perspective. According to Donabedian's epistemological analysis for quality management, improvements in the structure of care should lead to improvements in clinical processes that should improve patient outcomes (Moore, Lavoie, Bourgeois, & Lapointe, 2015). I used Donabedian's quality improvement model to assess the performance of rural hospitals post mergers regarding structure, process, and outcome and evaluate the correlation between quality domains. The structure includes all

the factors that affect the context in which care is delivered, the process describes the sum of all actions that make up healthcare, and outcomes denote all the effects of health care on patients or populations. The goal of this study was to further explore the principles for successful health systems integration in critical areas such as restructuring, organizational flexibility, and adaptation (see Grol et al., 2007; Suter, Oelke, Adair, & Armitage, 2009).

Application of Donabedian's (2005) philosophical theory to evaluate and transform the social conditions of the targeted rural hospitals as well as testing the processes in place that protect patients and procedures of hospital cultures involved, clearly supports that the method used strongly affect the conclusions to be drawn. Given the inherent complexities of the U.S. healthcare system, a theoretical framework that requires a holistic approach to identify specific areas where system complexities slow or inhibit progress could prove beneficial to a study (see Hempel, Gibbons, & Ulloa, 2015; IOM, 2011). Donabedian's theoretical work offered an in-depth description process through which I could articulate a definite need for quality improvement initiative to ensure the level of readiness and adaptability necessary for quality patient safety and provide a useful outlet for minimizing CCDs. Further, the theory may provide decision-makers with system-level indicators of quality and assist in exploring strategies that network development leaders may use to improve organizational performance.

Definitions

Clinical care disruptions/Clinical Discourse (CCDs): Health care services characterized as turbulent, hectic conditions, more interruptions, and distractions resulting from the rapid growth of large health care corporations, which has altered

organizational structures and dynamics as well as continually changed health policies (see Jennings, 2008).

Clinical leadership measures: Measures that reflect the attributes of ensuring that the values and cultures of two different entities are aligned with the common goal of improving the quality of care (see Sarto, & Veronesi, 2016).

Hospital mergers/consolidations: The concept of bringing together individual hospitals via complete changes in the actual ownership. Combining administrative and organizational resources of two or more health care facilities can occur through either merger or acquisition (Hill Jr., 2018).

Hospital structures-care processes: These processes consist the way healthcare systems and processes work to achieve the desired outcome. This may include the length of time a patient waits for a clinical audit, ensuring required standards of care are met, or making sure that staff members wash their hands and report incidents (AHRQ, 2011).

Governance Mechanisms: Measures that reflect strategic controls, policies, and guidelines that drive the organization toward its objectives and further demonstrates the relationship between the characteristics of the health systems that have merged and the leadership processes and their consequences to the health and welfare of individuals and the community (Baker, Denis, Pomey, & MacIntosh-Murray, 2010).

Patient Safety Risks (PSRs): Hazards that cause or can cause healthcare-associated harm or injury (Jennings, 2008).

Preventable Adverse Events (PAEs): Care that fell below the standard expected of physicians in their community (see Barach, Jacobs, Lipshultz, & Laussen, 2015); Hodges, Spiller, Casavant., Chounthirath, & Smith, 2018).

Quality domains: The IOM defines quality domains as care-oriented task that encompasses the following key indicators of care -safety effectiveness, patient centeredness, efficiency, timeliness, and equitable (AHRQ, 2016).

Rural Hospitals (RHs): These are hospitals that are found within the rural localities, far away from towns (NC RHRPRC, 2014).

System integration best practices measures: Measures that helps organizations to identify unintended consequences of change known as organizational balancing measures. (Suter, Oelke, & Armitage, 2009)

Research Questions and Hypotheses

In this study, I developed the following four research questions and corresponding hypotheses about the association between organizational synergy ramifications, PSRs, and CCDs post RHMs as determined by Donabedian's model of care to assess the outcomes of quality of care in rural health centers (see Lukas et al., 2008).

RQ 1: Is there an association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients?

H01 —There is no association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients.

Ha1 —There is an association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients.

RQ2: What is the relationship between governance mechanisms and patient outcomes in RHMs?

H02 —There is no relationship between governance mechanisms and patient outcomes in RHMs.

Ha2 —There is a relationship between governance mechanisms and patient outcomes in RHMs.

RQ3: How do best practices facilitate quality-focused initiatives and contribute to eliminating unintended patient risks associated with structural changes and the process of care?

H03—Best practices do not facilitate quality-focused initiatives and do not contribute to eliminating unintended patient risks associated with structural changes and the process of care.

Ha3 —Best practices facilitate quality-focused initiatives and contribute to eliminating unintended patient risks associated with structural changes and the process of care.

RQ4: What is the relationship between clinician leadership and the quality of care outcomes in RHMs?

H04— Clinical leadership in RHM and acquisition deals is not a significant predictor of quality of care outcomes.

Ha4 —Clinical leadership in RHM and acquisition deals has a significant relationship with the quality of care outcomes.

Nature of the Study

In this study, I conducted a secondary data review in which relevant data were collected to determine patient risks and CCDs in RHMs. The focus was to confirm or validate existing relationships and yield generalization that could be applied in the development of some critical theories. Trying to understand the link between rural communities and hospital mortality through conducting a performance comparison of RHs postmergers could prompt policymakers to identify opportunities for future quality improvement efforts that narrow identified gaps. In this study, I gathered data from Medicare Mortality Ratings Databases, Hospital Compare, and Hospital Evaluation Databases from 20102018 to research the performance differences. The data collected from the secondary documents were entered into Statistical Package for the Social Sciences (SPSS) computer software and analyzed as considered appropriate. The specific variables investigated were RHMs (i.e., the independent variables) and patient risks and clinical disruptions (i.e., the dependent variables).

Literature Review Related to Key Variables and/or Concepts

Several scholars have conducted studies on the topic of patient risks and CCDs in RHMs. In this literature review, I considered the implications of care fragmentation that dominate the more obvious health care crisis and the need for integrative solutions in hospital mergers (see Stange, 2009). To begin with, Noles et al. (2015) and Burkey, Bhadury, Eiselt, and Toyoglu (2017) highlighted and studied the characteristics of RHs

that closed, merged, or were acquired to see how they coped with structural changes, what they have in stock, and what other predictors of success or failure related to access to care. Mainly, Burkey et al. discussed the effects of hospital closures on equity and examined whether rural residents are disproportionately affected by hospital closures. Noles et al. used data from Irving Levin Associates (ILAs)' Healthcare Merger, and Acquisition Report and Medicare Cost Reports from 20052012. The researchers then applied logistic regression to identify specific factors that tend to predict mergers, while, at the same time, using multiple regression to examine different hospital measures after mergers and acquisitions.

Their empirical findings cited the variations in patient needs, demographic shifts, and facility conditions as reasons for closures. Noles et al. further identified changes in rural hospital financial performance, staffing levels, and inpatient services as predictive factors of mergers; however, the methodology they used was not apparent.

Hass et al. (2018) cited three factors that can create significant downstream conditions that can result in multiple failures. They highlighted the need for healthcare leaders to use system data to plan for unexpected downstream situations driven by changes in both organizational and governance processes. However, this information was based on an individual opinion without any form of scientific evidence.

Hospital mergers are paradigmatic complex entities, and their ability for collaboration, commitment, and leadership among clinicians can be obstructed by culture dynamics, value boundaries, and changing government regulations. Grol, Bosch, Hulscher, Eccles, and Wensing (2007) offered different theoretical assumptions to plan

for and manage the impact of quality improvement initiatives in complex changing environments, and these were possible theories considered for application in the present study. Grol et al. discussed the theories of leadership in management and total quality management, often known as continuous quality improvement, as tested mechanisms when redesigning multidisciplinary care processes and promoting a quality safety culture in a changing environment. Millar, Mannion, Freeman, and Davies (2013), on the other side, elucidated the role of a hospital board's oversight of patient safety and revealed several approaches to be explored in diffusing the complexities and ambiguities related to evidence-informed governance and quality practices in changing structural environments. Brown et al. (2016) presented different views on the successful implementation of clinical networks about the reorganization of healthcare services in hospital consolidations. Johar et al. (2014) and Kaufman et al. (2016) cited problematic downstream conditions of patient risks attributable to the rapid surge of RHMs and affiliations. Both groups of authors offered unique insights into patient wait time effects and variations in hospital performances.

Experts of healthcare mergers and acquisitions argued that structure changes involving cultural assimilation, process, integration, technology, and system integration are essential to survive in the shifting industry landscape. (see Jennings, & Hughes, 2008). Williams Jr. et al. (2018), on their part, examined the pattern of mergers of rural hospitals across the United States. from 20052016 and looked at the financial impact of merging and discussed the effect on access to care within rural communities. The authors also identified significant concerns such as reduced negotiating power with insurers,

centralized governance, and outsourcing of support services as factors that could create an unnecessary burden to clinicians and confusion among patients. Ackerman et al. (2018) examined proposed patient safety measures for capturing patient safety variations in ambulatory care in safety net health systems (SNHS). The authors reported the problems faced by SNHS, rural hospitals, and other providers, and found that lack of active participation of key stakeholders such as patients, clinicians, staff, data system professionals, and health system leaders, remains an impediment to quality improvement initiatives.

Secondary Data Types and Sources of Information

Data in this study were based on information collected from the 50 states, and are publicly available on Medicare Hospital Compare. Mortality and hospital readmission data on specific medical conditions and patient characteristics, which covers all 50 states excluding the District of Columbia, were included in the study. Patient morbidities and ethnicity information came from the Centers for Medicare and Medicaid Services (CMS) Hospital General Information File (i.e., HOSArchive_Revised_Flatfiles_20190702). Data on hospital characteristics were obtained from NC RHRPRC and ILAs Healthcare Mergers & Acquisition reports collected from 2010 through 2018, in which I identified a total of 380 rural hospitals that have merged or acquired. Both NC RHRPRC and ILAs maintains a publicly available map for tracking and counting RHMs and closures. Additional data for hospital characteristics were collected from the Medicare Provider of Service files and the Healthcare Cost Report Information System.

I assessed data from Hospital Consumer Assessment of Healthcare Providers and Systems measures publicly reported on Hospital Compare to measure hospital performance on clinical process and patient experience composite measures (Casey, Hung, Evenson, Distel, & Moscovice, 2015). The performance composite measures consisted of routinely collected CMS outcome measures were grouped into six categories weighted by importance: mortality, safety of care, rehospitalizations, patient experience, effectiveness of care, and timeliness of care. To minimize the susceptibility in these measures of quality, I grouped the six separate outcome measures followed by CMS into three composite outcome indices: one for 30-day mortality, one for 30-day readmission, and one that combines both mortality and readmission measures.

My digital procedure of collecting secondary data from scholarly databases was comprised of entering specific words, such as *patient risks, clinical care disruptions, and rural hospital mergers*. I only referenced websites that showed relevant results, or conventional sources of secondary data for social sciences such as national censuses, information collected by government departments, and other organizational records related to the topic under study. The exclusion and inclusion criteria for this review of the literature was only journals written in English and those not published more than 7 years ago being considered for analysis. By performing secondary data analysis, I adequately gathered relevant information related to specific patient risks and CCDs in RHMs.

For this study, I assessed secondary data collected by government public services departments, libraries, and censuses, such as the U.S. Census, the CDC, the CMS and the U.S. NVSS. The sources were obtained through the use of search engines that enabled

access to different articles plus some other sources of information that were needed for the study. The search engines, in this case, did allow access to academic essays and journals, e-books, and papers that contained content on the topic. Relevant articles and e-books were also reviewed after first gaining access to the relevant abstracts and articles, through entering the keywords that were selected for the study. Upon acquiring enough resources and materials, I checked the information, data, and records deemed relevant.

Assumptions

In this study, I assumed that RHMs have both positive and negative patient risks and CCDs. I also assumed that relevant data would be obtained as far as the topic is concerned. Another assumption that the data collected from Medicare Mortality Ratings Databases, Hospital Compare, and Hospital Evaluation Databases on PSRs were reported precisely and correctly, and the use of the current studies was critical to drawing significance findings.

Scope and Delimitations

I constructed this study to analyze the relationship which is there between rural communities and hospital mortality through conducting a performance comparison of RHs post mergers with the desire to identify opportunities for future quality improvement efforts that narrow identified gaps. The extent of the study was limited to patient risks and clinical discourse in RHMs. In **t**his study, I conducted a quantitative analysis in which relevant, quantitative, and secondary data from Medicare Mortality Ratings Databases, Hospital Compare, and Hospital Evaluation Databases were collected to determine patient risks and clinical discourse in RHMs.

Limitations, Challenges, and Barriers

Various studies have reported the problems faced by researchers when selecting their research methodologies. As outlined by Saunders, Lewis, and Thornhill (2009), the research methodology serves as the foundation of the study. With the use of the quantitative methodology, there were at least three potential challenges that could have resulted in limitations that may have been beyond my control. The lack of resources for data collection may have resulted in limited understanding and, especially, the resources needed to perform an in-depth quantitative investigation (see Younus, 2014). Quantitative study demands comprehensive statistical analyses, which may be challenging to perform for researchers from non- mathematical backgrounds. Finally, to achieve in-depth quality, a quantitative study may involve extra time, investment, and resources to refine the results (Saunders et al., 2009). To reduce some of the barriers, I used publicly available secondary data from Medicare Mortality Ratings Databases, Hospital Compare, and Hospital Evaluation Databases (2010–2018) to research the patient risks and CCDs in RHMs. Due to its exposure and public cross-examination, secondary data collected from Medicare Mortality Databases and Hospital Compare, and Hospital Evaluation Databases have a preestablished degree of validity and reliability.

Significance, Summary, and Conclusion

In this first section of the study, I introduced the study, and provided the background to the problem, the purpose of this study, the theoretical framework, the nature of the study, a literature review related to critical variables, secondary data types and sources of information, research questions with associated hypotheses, assumptions,

scope and delimitations, limitations, and challenges and barriers. Safeguarding patients in health care settings is cornerstone to achieving high-quality health care for the U.S. population (IOM, 2001; Sacristan, 2013). Rural inhabitants of the United States are approximately 50% more likely to die from preventable causes (James, 2013). Rural communities still experience a newborn death rate 25% higher than their urban metropolitan counterparts (Moy et al., 2017; NVSS, 2017). Many of these PAEs are linked to the poor quality of care (CDC, 2017).

Evaluating these risk factors and identifying the national goals that aim to increase patient safety through best practices focused on healthcare-associated adverse events in RHMs could generate improved clinical outcomes (Darker, Nicolson, Carroll, & Barry, 2018). Hence, understanding the relationship between rural communities and hospital mortality through conducting a performance comparison of RHs postmergers could prompt policymakers to identify opportunities for future quality improvement efforts that narrow identified gaps.

Although numerous proposals to improve the U.S. rural delivery services have been initiated, substantial differences across a range of quality domains persist for rural residents compared with urban and suburban counterparts (see Buettner-Schmidt, Miller, & Maack, 2019). Ely et al., 2018). There has been little evaluation of the CCDs and PSRs on hospital mergers and acquisitions for rural patients based on the Donabedian's conceptual framework of quality of care through the triad of structure, process, and outcome (see Ayanian, & Howard, 2016; Pazargadi, Abedsaeedi, Majd, & Lankshear, 2008). The findings of this quantitative research study, therefore, fill the gap that exists in

the current literature and could offer an in-depth description process that can be used to articulate a definite need for quality improvement initiatives to ensure the level of readiness and adaptability necessary for quality patient safety, and provide a useful outlet for minimizing CCDs (see Moore et al., 2015). Assessing the association of structure, process, and outcome variables in RHMs will not only help to reduce PAEs, but it will also provide decision-makers with system-level indicators of quality and assist them in exploring strategies that can be used to improve organizational performance. In Section 2 of this study I presented the research design and the specific procedures used in conducting this study.

Section 2: Research Design and Data Collection

Introduction

Since 2010, over 380 rural hospitals have merged, affecting access to quality of care and triggering complex PSRs and associated CCDs (Williams Jr. et al., 2018). The burden affects nearly 60 million people who reside in rural counties across the United States including millions of Medicare and Medicaid beneficiaries (CDC, 2017). Numerous studies have recognized the multiple hurdles that rural residents encounter when accessing medical services, including a disintegrated healthcare delivery system, stretched and diminishing rural health workforce, and unaffordable medical costs (AMA, 2018). The AHRQ (2018) and NC RHRPRC (2014) both acknowledged that hospital mergers and acquisitions are modifying the face of health care in rural communities across the United States.

With the significant expansion of hospital mergers or acquisitions, there is a problem with the quality, efficiency, and patient safety in the U.S. rural healthcare delivery, mainly related to RHMs (CDC, 2017; NC RHRPRC, 2014; Unger et al., 2018;). Tens of millions of rural residents are impacted by such transactions each year (Hass et al., 2018). Health care delivery in rural areas of the United States is mostly fragmented, and because of its fractured nature combined with the health care needs of rural residents, who may be at higher risk for multiple chronic conditions that require treatment from a team of providers, coordinating care among specialists can be strenuous (see AHRQ, 2012; CDC, 2017; Davis et al., 2015). This can also result in unnecessary and costly duplication of services as well as an increased risk of medical errors (see Berg, &

Grimeland, 2013). The disruption resulting from integrating two independent facilities with opposite values is a system that often is costly and less effective at meeting the needs of the rural patients, particularly in the immediate aftermath of the merger (American Health Information Management Association, 2012)

Over 440,000 deaths were a result of PAEs in inpatient and outpatient U.S. healthcare settings (James, 2013). Many of these PAEs were linked to the poor quality of care. Rural U.S. citizens are 50% more likely to die from preventable causes, and compared with urban populations, rural communities still experience a newborn death rate 25% higher (Moy et al., 2017; Roth, Denney, Amiri, & Amram, 2019; U.S. NVSS, 2017). According to the U.S. Census Bureau (2016), unintentional PAEs such as drug over-doses, increased chronic diseases and declined life expectancy, and the incidence of diseases and morbidities are about 50% higher in rural areas than in urban cities. The CDC (2017) and Harris et al. (2016) attributed this disparity to differences in socioeconomics, health behaviors, and access to health services. These disparities have even become more apparent when examining PSRs and CCDs due to hospital mergers and acquisitions that have reached record-high spending.

Previous studies have shown some anticipated benefits of mergers, such as improved financial performance, service consolidation, and operating efficiencies (Noles et al., 2015). Various researchers have suggested mergers as an effective strategy for rural hospitals in financial distress (Burkey et al., 2017). However, there has been a little examination of the CCDs and PSRs that hospital mergers and acquisitions have on rural patients. Declining reimbursement levels, increasing capital needs, a weak economy, and

easier access to credit have all attributed to a level of RHMs not seen in more than 2 decades (see Hass et al., 2018; Noles et al., 2015). To better understand the ramifications of mergers and acquisitions for RHs, I developed the following four research questions to guide this study:

RQ1: Is there an association of healthcare transformation changes in structures, processes, organizational culture and values on clinical outcomes for rural patients?

RQ2: What is the relationship between governance mechanisms and patient outcomes in RHMs?

RQ3: How do best practices facilitate quality-focused initiatives and contribute to eliminating unintended patient risks associated with structural changes and the process of care?

RQ4: What is the relationship between clinician leadership and the quality of care outcomes in RHMs?

To date, while many studies have focused on the association between hospital consolidation and the financial aspects, no research has been conducted to explore or identify specific areas where system complexities slow or inhibit the adaption of a holistic patient safety culture in RHMs. Given the scale levels of need in rural communities and despite the benefits of hospital mergers, patient care and safety must be of great importance both during and after the transition planning phases (Noles et al., 2015). To bridge this gap in the literature, I focused on four aspects of leveraging organizational synergies in this study: change management, governance mechanisms,

system integration best practices, and the role of clinical leadership. Understanding the relationship between hospital mortality and the potential performance comparisons of rural hospitals post mergers could prompt policymakers to identify opportunities for future quality improvement efforts that narrow identified gaps. The study results may provide decision-makers with system-level indicators of quality and assist them in exploring strategies that can be used to improve organizational performance.

The objective of section 2 was to present the research strategies and methods related to data collection and analysis. In this section, I discussed the relevant theory and the problem that has stimulated this study. My study was to identify an in-depth process that can be used to articulate a definite need for a quality improvement initiative to ensure the level of readiness and adaptability necessary for quality patient safety and provide a useful outlet for minimizing CCDs. Network development leaders need to be aware of the merging processes and best integration practices that will have positive influences on reducing CCDs and PSRs. In this section, I provided the process of data collection method from all relevant sources to find solutions to the research problem, test the hypotheses and evaluate the outcomes. My aim was to present a thorough literature analysis regarding the relationship between the following organizational synergy complexities: governance mechanisms, hospital structures-care processes, clinical leadership, and system integration best practices, and quality domains (i.e., CCDs and PSRs) post mergers.

Research Design and Rationale

With the significant expansion of hospital mergers and acquisitions, there is a problem with the quality, efficiency, and patient safety in the U.S. rural healthcare delivery services, mainly related to RHMs (CDC, 2017; NC RHRRC, 2014; Unger et al., 2018). Understanding the fundamental problem of quality of care in the disintegrating healthcare system, which may result from integrating two independent facilities with different values, is an essential first step to define the root cause of PAEs in RHs post mergers. Such brokenness and unbalance due to systemic integrating misalignment, competing interests, cultural differences, and inefficient allocation of resources, are at the heart of the ineffectiveness of hospital processes, poor quality, and health inequalities. In this study, I used a conceptual model to critically analyze gaps in healthcare quality in RHMs, with the intent of systematically understanding the discrete components of quality gaps and their potential mechanisms. Identifying specific areas of healthcare quality problems in U.S. rural communities would provide actionable targets for future research and quality improvement.

In this study, I applied a synthetical correlation conceptual approach that is outlined by Donabedian's vision for the evaluation of quality outcomes, which identifies elements influencing care quality into structures, processes, and results, and furnishes a theoretical perspective for research and interventions in quality improvement. This approach was appropriate for developing and determining meaningful metrics to assess if an association exists between organizational synergy complexities: governance mechanisms, hospital structures-care processes, clinical leadership, and system

integration best practices and quality domains (i.e., CCDs and PSRs) post mergers. In this study, I used the independent variable (i.e., RHMs) and the two dependent variables (i.e., CCDs and PSRs) to discern the relationship between rural communities and hospital mortality through conducting a performance comparison of RHs post mergers.

Methodology -Theoretical Framework

In this study, I discussed some of the literature on the conceptual framework and related metrics, either directly or potentially relevant to PSRs and CCDs in RHs post mergers. This discussion was to provide a brief explanation of the selected potentially useful framework and to demonstrate how the Donabedian's quality improvement model might be used to guide the development of this study. Thus, the purpose of this section 2 was to show that a theoretical perspective from this model could be applied to modify structures and processes within healthcare delivery systems, such as integrating organizations, to improve patient safety, information exchange, and minimize CCDs (Ayanian et al., 2016).

In this study, I applied the Donabedian's structure-process-outcome approach to effect further improvement in hospital mergers and conduct a performance comparison of RHs post mergers. The theoretical base for this study was the Donabedian's quality improvement model. Donabedian's three components approach for evaluating the quality of care underpins the measurement of improvement initiatives. In this theory, Donabedian (1988) explained that information about the quality of care could be drawn from three categories-structure, process, and outcomes. Donabedian (2003) noted that each of the three domains has advantages and disadvantages that necessitate researchers

to draw connections between them to create a chain of influence that is theoretically useful for determining systems as well as designing experiments and interventions. This quality of care model was developed to be blendable for care systems in disparate healthcare environments and among various levels within a delivery system (Ayanian et al., 2016). Donabedian further asserted that this theory could also be utilized to a sizeable healthcare organization to evaluate the overall quality and align improvement programs across a care system to improve quality and outcomes for a population.

Integrating healthcare organizations have inherent complex organizational structures because of transformational changes in leadership, clinical care setting, workforce challenges, changing patient expectations and demands, fiscal constraints, increasing requirements for access to care, a mandate to improve patient-centered care, and issues concerned with levels of quality and safety of health care (Daly, Jackson, Mannix, Davidson, & Hutchinson, 2014). In addition to CCDs, health systems may deal with complexity through various organizational structures such as decentralization, centralization, or multiple channels of authority (Ayanian et al., 2016). Donabedian's conceptual model provided me with a practical framework for a research agenda that could ultimately assess whether rural patients receive a lower quality of care and have worse outcomes post mergers.

Because the theory describes that structure measures influence process measures, which, in turn, affect outcome measures, the Donabedian's quality improvement model continues to serve as a touchstone framework in health services research in understanding the actual effectiveness of new strategies or modifications within the care process (Moore

et al., 2015). Per the Donabedian (2005) model**,** it is critical for any improvement initiative to have outcome measures, process measures, and structure measures, these different types of actions have a unique objective in establishing whether the improvement task has had the desired outcome. As the analysis of the methodologies of this study, I focused on four dimensions of leveraging organizational synergies: change management, governance mechanisms, system integration best practices, and the role of clinical leadership to establish or evaluate the possible relationship between quality domains.

Change Management Complexities

Various health care organizations, in the name of merging and consolidation, have acquired a collection of overlapping practices that fail to achieve the intended goal of safety system development (see Jennings et al., 2008). Previous researchers have described the U.S. rural healthcare system as vulnerable, in part because of a confluence of integrating health systems, each with seemingly competing interests, perspectives, missions, values, and contrasting cultures (Noles et al., 2015). Among the evolving hospital paradigm due to hospital mergers and a turbulent economy, the future for RHs seems uncertain. As rural hospitals respond to increasing pressures of financial constraints, they are opting to consolidate both diagonally and vertically to be able to deliver integrated, cost-effective care; however, such shifts presents challenges for rural hospitals, which often serve as the foundation for health care delivery in rural communities and yet battle to conquer the ramifications of troubled economies, shortages of health professionals, and public policy inequities (Moscovice & Stensland, 2002).

Unless merging organizations make a substantial long-term commitment to changes in addressing the progressive deficiency that has been encountered by the acquired health system, addressing the issue of quality of care, and managing transformation can be challenging (see Baker, Denis, Pomey, & MacIntosh-Murray, 2010). Failure to cultivate an environment conducive to change and overcoming resistance may lead to ever-increasing health disparities between rural and urban communities (Cossman et al., 2017; Noles et al, 2015).

Governance Mechanism Capabilities

The future of organizational sustainment in hospital mergers requires highly effective governance processes to confront a profusion of risks, including regulatory and policy changes, performance, ethics, and quality of care issues. According to Baker et al.2010, adopting a greater responsibility for quality and safety performance is challenging for many boards and yet efforts to engage boards in improving care are based on the rationale partnership to achieve economies of scale rather than patient-centered care. Research suggests different cultures between integrating organizations will present additional challenges with the balance of power resistance, goals misalignment, and an array of clinical disruptions (Hass et al., 2018). However, overcoming such challenges requires effective governance and heroic leadership, which is focused on generic based quality and safety good practices. Donabedian conceptual model, therefore, has a profound effect on helping hospitals to identify specific areas for clinical improvement and created an environment that is conducive to improving the quality and safety of care.

System Integration Best Practices measures.

Healthcare is a sophisticated-adaptive system where interactions and relationships of different components simultaneously transform and are shaped by nonefficient integrated operations (Tsasis, Evans, & Owen, 2012). Intrinsically, it is critical for performance initiatives to be integrated within the healthcare organization's strategic objectives post a merger. Key intentions, such as consolidating resources for efficiency, expanding access points, boosting financial viability and market presence, focusing on population health management, acquiring facilities for expansion, all require performance improvement to be successful. Given the magnitude of barriers to implementing best practices in RHMS, from cultural, clinical to financial, care institutions are confronted with the challenge of identifying and creatively overcoming them to achieve and sustain patient safety environments.

With confounding and inherent structure complexities emanating from non-binding long-term commitments to such an arrangement, participating hospitals are understandably reluctant to exit from a service line (see Noether, & May, 2017). Although implementing standardized tools such as decentralization, centralization, or multiple channels of authority are not the quick fixes, the Donabedian's quality improvement model provides a vital framework of how change management complexities may impact the adoption of a safety culture. Designing a quality safety culture model that supports superior performance in terms of quality and safety as a result of effective communication-best practices and standardized protocols in a manner that accomplishes

the hospital's needs is critical to significantly improving clinical, financial, and patient outcomes.

Clinicians Leadership Roles

Research reveals that today's leaders are hard confronted with multiple complex issues that impact the ability to successfully implement cost-effective programs, maintain efficient operations and services, and support patient safety initiatives (Daly et al., 2014). Hass et al. (2018) argued that workforce challenges, changing consumer expectations and demands, fiscal constraints, increasing requirements for access to care, a mandate to improve patient-centered care, and issues concerned with levels of quality and safety of health care all remain at the center stage of hospital mergers. With so many changes and the sheer scale of competing priorities in RHMs, effective governance is imperative in ensuring a high-quality health care system that consistently provides safe and effective patient care.

In addition to deficiencies associated with condensed resources and demand in rural hospitals, episodes of the prevalence of mortalities, cultures of poor care, and a range of workplace difficulties have been associated with poor clinical leadership, and these concerns have provided the impetus to evaluate clinical leadership roles more carefully. Integrating hospitals and care systems in rural communities must adopt a quality model that position structures, processes, and teams that support evidenced best practices (Austin, Bentkover, & Chait, 2016). The pressure for managing these responsibilities in striving for efficiency, control the costs and outcomes for an entire episode of care, and sustainability is neither simple nor easy because it requires greater

adaptability in transformative change for the demands of a transforming healthcare system (Kaufman et al., 2016).

In the changing environment where health systems need to audit their practices, procedures, and facility cultures carefully during and after a merger to ensure that staff is adequately prepared and trained for new challenges, the Donabedian's quality model may shed some light on the goals and responsibility for safety and quality which are usually unclear. Consequently, recent research coupled with well-publicized patient safety initiatives suggests that the Donabedian framework remains the dominant paradigm for assessing and drawing inferences about the quality of care in a given system (Gardner, Gardner, & O'Connell, 2013). Engaging clinicians during a merger and collaborating with clinician leadership to drive best merging practices adoption post an alliance needs to be thoroughly ingrained in hospital practices—to result in implementing a clear accountability safety framework and relationships between all stakeholders.

Participants/Sample Size

Data Sources/Study Setting

Three hundred eighty hospital mergers during the period of 2010–2018 were identified, and a random sample of pairs of rural hospitals that have merged or acquired was drawn to establish a statistically efficient control cohort. Data used for the inquiry were extracted from scholarly databases that track the mergers in RHs in U.S. citizens from 2010 through 2018. RHs in U.S. rural counties nationwide during the period 2010 to 2018 was the focus of the study. The sources utilized consist of databases such as NC RHRPRC publications, the health care services acquisition report produced by Irving

Levin Associates (ILAs), the *Journal of Patient Safety,* and the *Journal of American Medical Association*, CDC and U.S. Census Bureau publications, Google Scholar and Walden University's library databases (see Neprash, Chernew, & McWilliams, 2017). For triangulation in this correlation research, I used patient outcome measures of mortality and readmission rate to study the effects of mergers on hospital quality of care from the Hospital Compare website at Data. Medicare.gov.

Table 1.

Rural Hospital Mergers Ranked by State: Between 2010 and 2018

States	Mergers	States	Mergers
Oklahoma	36	Louisiana	7
Texas	24	Oregon	6
Tennessee	20	Maine	5
Wisconsin	19	Iowa	5
North Carolina	18	West Virginia	4
Pennsylvania	17	Kansas	3
Virginia	16	California	3
Georgia	16	Connecticut	3
South Carolina	15	Maryland	3
Alabama	14	Nebraska	3
Illinois	13	South Dakota	3
Michigan	13	North Dakota	3
Ohio	12	Arizona	2
Arkansas	11	Montana	2
Missouri	11	New Mexico	2
New York	11	Washington	2
Mississippi	11	New Hampshir	1
Kentucky	10	Hawaii	1
Minnesota	10	Nevada	1
Indiana	9	Idaho	1
Florida	9	Massachusetts	1

From "Rural Hospital Sustainability Index Data," by Navigant, 2019 (http://www.navigant.com/navigant.com)

Table 2 shows that, on average, over 400 U.S. rural hospitals are vulnerable or are at a 20% risk for closure or a merger. The risk of closure due to the financial crisis, potentially hinder many U.S. rural citizens' access to care. Overall, data presented on this table support that the risk for rural hospitals closures or mergers in U.S. states run from lower 3.6% to 50% high (see Mosley & DeBehnke, 2019).

Table 2.

Number of Rural Hospitals that are At Risk to Merge/Close by State

States	Total RHs	RHs at Risk	% at Risk
Oklahoma	58	17	23.9
Texas	21	1	4.8
Tennessee	37	7	18.9
Wisconsin	95	17	17.9
North Carolina	15	4	26.6
Pennsylvania	41	9	22.0
Virginia	27	10	37.0
Georgia	22	1	4.5
South Carolina	63	26	41.3
Alabama	42	21	50.0
Illinois	75	9	12.0
Michigan	71	18	25.4
Ohio	65	7	10.8
Arkansas	49	18	36.7
Missouri	61	14	23.0
New York	48	9	18.8
Kentucky	65	16	24.6
Mississippi	64	31	48.8
Minnesota	89	19	23.1
Indiana	10	1	10.0
Florida	13	0	0.00
Oregon	28	1	3.6
Maine	40	8	40.0
Iowa	17	0	0.0
California	50	4	8.0
West Virginia	37	7	18.9
Kansas	101	29	28.7
Utah	127	12	9.4
Maryland	5	0	0.0
Nebraska	70	8	11.4
Washington	23	8	34.8
Idaho	40	6	15.0
Vermont	39	9	23.1
Wyoming	25	3	12.0
New Hampshire	17	5	29.4

Note. 19% of the U.S. population is served with rural hospitals at high operational risk. Top risk States show a 20% or more and represent the vulnerability of communities.

Sampling and Sampling Procedures

Rural hospitals that have merged or acquired between 2010 and 2018 were the target population for this research study. Three hundred and eighty mergers involving rural hospitals from 2010 through 2018 were identified from the Health Care Services Acquisition Report produced by ILAs. The Hospital Compare datasets, updated periodically on the Medicare.gov Hospital Compare Website provided by the CMS, was utilized to analyze and to pinpoint the impact of acquisition-driven transformational changes on the quality performance of acquired rural hospitals. Based on the data source's capabilities in enabling researchers to compare the quality of care at over 4,000 Medicare-certified hospitals across the country, this data source was significant to the study.

As highlighted in the previous section, this correlational study utilized archived and secondary data from the Hospital Compare website at Data. Medicare.gov. The literature review was comprised of journals and articles from the NC RHRPRC publications, *the Journal of Patient Safety*, and *the Journal of Medical Association*, AHA, CDC and U.S. Census Bureau publications, Google Scholar, and Walden University's library databases. Procedures for data collection was composed of transferring data in Microsoft Excel tables, and data analysis was performed through IBM SPSS Statistics Version 25.

Power Analysis

Power analysis using G*Power 3.1.9.4 was performed to ascertain whether the number of hospitals incorporated in the study would be appropriate to detect a significant

correlation at a small effect size of *(Z = 02)*. Considering the logistic regression with an alpha set at 0.5, effect size of .15 with a 1.4 odds ratio and 80% predictive power, the minimum number of hospitals included in the study was 348, as shown in Figure 1. In this case, the predictive power of 80% was selected to determine the minimum lower level of sample size. However, a final sample size of 380 rural hospitals that have merged or acquired was analyzed to find if there is a compelling association that exists in the population.

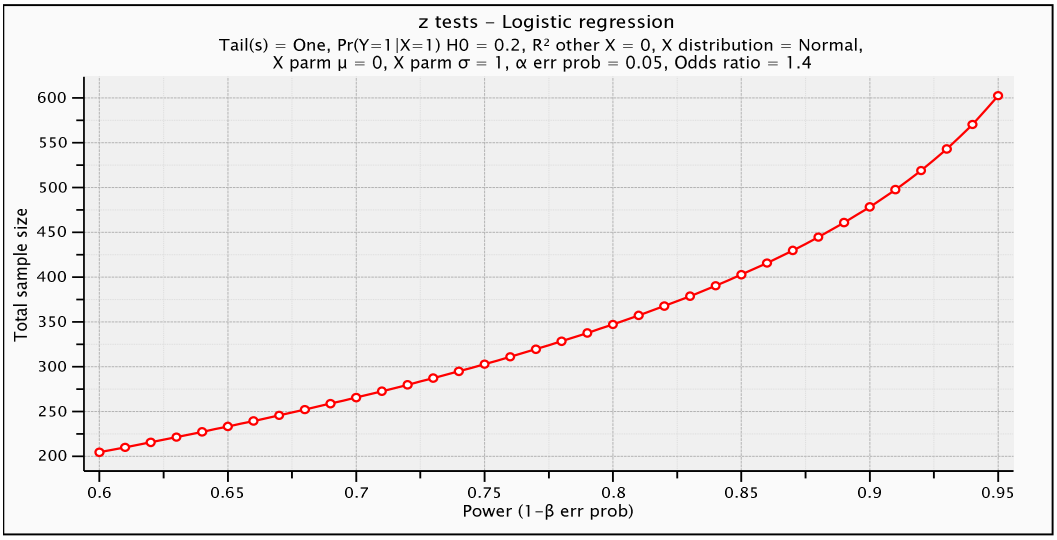

Figure 1. The effect size of the odds ratios was computed using G*Power's logistic regression analysis priori function as represented in the graph

Data Collection, Strategy, and Management

Keywords such as *patient risks, clinical care disruptions, organization structural changes, organizational complexities, hospital mortalities, and rural hospital mergers* were utilized to assist in finding and locating relevant literature of this study. The library sources searched include journals and articles from the NC RHRPRC publications, *the Journal of Patient Safety*, and *the Journal of Medical Association*, AHA,

CDC and U.S. Census Bureau publications, Google Scholar, and Walden University's library databases. The literature search of my study explored to precisely assess the performance of rural hospital alliances regarding structures, processes, and outcomes and evaluate the correlation between quality domains. In this correlation research, I used patient outcome measures of mortality and readmission rate to study the effects of mergers on hospital quality of care.

This quantitative study exploited data from publicly available Medicare Mortality Ratings Databases, Hospital Compare, and Hospital Evaluation Databases (2010–2018) to research the performance differences. In addition to the analysis, data from scholarly databases that track the mergers in rural hospitals in all 50 U.S. states within the period of 2010–2018 were extracted. These secondary datasets are available to the public, and the data is de-identified with no personal identification to any patients. An authorization for research to access the data was obtained from the Walden University Institutional Review Board with an approval code of 07-18-19-0496865.

Instrumentation and Operationalization of Constructs

To better study the quality of care, level of clinical care disruptions, and understand the mechanisms accounting for any potential performance differences in care for rural patients post mergers, Donabedian (2005) conceptual model for Assessing Quality of Care was exploited. This model was deployed to establish whether a structure (organization structural changes in RHMs) and processes (hospital performance) are associated with quality outcomes or may ultimately lead to increased PSRs (PAEs, mortality, morbidity, rehospitalization rates, and clinical care disruptions). Other IOM

quality domains such as timely, effectiveness, equity, efficiency, safety, and patient-centeredness care measures were considered to strengthen the model of the study (AHRQ, 2016).

The statistical research tool that was appropriate to analyze data of this quantitative study was IBM SPSS Statistics 25. Data collected from both the secondary documents and from the Data.Medicare.gov was entered into SPSS computer software and analyzed to answer research questions, test hypotheses, or disprove theories. As outlined in the Donabedian's quality improvement model that outcomes refer to the effects of healthcare on the health status of patients and populations, I proposed that the construct for this study to be model driven on patient safety culture.

Operationalization

This model strives to elucidate how specific organization structural complexities inherent in hospital alliances and in providing care to rural patients can affect processes and lead to poor outcomes. The study needed to display whether such relationships between transformational changes and PSRs and CCDs post-RHMs does exist. According to the Joint Commission's Patient Safety Systems Chapter, patient safety culture is the value of what a hospital is and how it does surpass its safety targets (Joint Commission, 2016). Evaluating and assessing the PSRs and CCDs of health care is critical because it reflects how the institution is performing and leads to improved care post-mergers. Emanuel et al. (2008) interpreted patient safety as a characteristic of health care systems that reduce the incidence and prevalence of death and the impact of preventable events and maximize recovery from such activities.

Because patient safety demands the design of systems in integrating organizations to make risky interventions reliable and which cannot be directly detected, an attempt to assess risk effect by operationalizing PSR variables (mortality rates, morbidity, hospital readmissions, and PAEs) was made. Variables analyzed were identified and scaled in numeric, and these include RHMs (independent variable) and PSRs and CCDs (dependent variables). Understanding the relative strengths of the proposed model components and tested association of measurement methods discussed here could help investigators, clinicians, administrators, and policymakers meet this goal.

Table 3.

Dependent and Independent Variables

	Dependent (PSRs and CCDs)	Independent	Covariates
	Mortality rates Hospital readmissions Morbidity level PAEs	Rural hospital that have merged or acquired (RHMs)	Hospital performance merits (urban vs rural hospitals) Timeliness of care Safety of care Patient experience Financial ratio

Data Analysis Plan

To summarize the collected information for interpretation, answer my four research questions and presentation of the findings, the data collected from the secondary documents were entered into SPSS computer software and analyzed as considered appropriate. The specific variables investigated were RHMs (independent variables) and patient risks and CCDs (dependent variables). Models constructed from hypotheses

concerning health systems and patient safety risks and clinical care turbulence pertinent to the likelihood of a merger were tested using logistics regression analysis.

The technique allowed this study to determine the relationship between organizational systems and the level of CCDs and the prevalence of PSRs after mergers. The purpose of utilizing this analytical sampling technique was to determine if statistically significant correlations exist between the two dependent variables (PSRs and CCDs) and the independent variable (RHMs) while adjusting for each covariate of organizational complexities (hospital care process, clinical care leadership, governance mechanisms and system integration best practice indicators). Key findings and study results will be presented in section 3. A total of four research questions were examined to determine the association between organizational synergy complexities and CCDs and PSRs in RHMs:

Research Questions and Hypotheses

RQ 1: Is there an association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients?

H01—There is no association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients.

Ha1—There is an association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients.

RQ2: What is the relationship between governance mechanisms and patient outcomes in RHMs?

H02—There is no relationship between governance mechanisms and patient outcomes in RHMs.

Ha2—There is a relationship between governance mechanisms and patient outcomes in RHMs.

RQ3: How do best practices facilitate quality-focused initiatives and contribute to eliminating unintended patient risks associated with structural changes and the process of care?

H03—Best practices do not facilitate quality-focused initiatives and do not contribute to eliminating unintended patient risks associated with structural changes and the process of care.

Ha3—Best practices facilitate quality-focused initiatives and contribute to eliminating unintended patient risks associated with structural changes and the process of care.

RQ4: What is the relationship between clinician leadership and the quality of care outcomes in RHMs?

H04— Clinical leadership in RHM and acquisition deals is not a significant predictor of quality of care outcomes.

Ha4—Clinical leadership in rural RHM and acquisition deals has a significant relationship with the quality of care outcomes.

Threats to Internal and External Validity

Challenges about secondary use of data mostly emerge around potential harm to individual subjects and the issue of obtaining consent (Tripathy, 2013). However, in this study, there were very few threats to the internal and external validity of data. As previously highlighted in the data collection strategy section, the data contained in the Hospital Compare at CMS.gov is a public-use secondary dataset that is patient de-identified. In addition to secondary data analyses serving in this study as an economical alternative to an expensive and time-consuming data collection process, most research projects that consist entirely of secondary data analysis raise few ethical considerations (Boo & Froelicher, 2013). There is the only area of concern to the reliability and validity of datasets used in the secondary analysis that mostly emanate from the precision and integrity of the techniques of data collection used in the initial data collection process.

Ethical Procedures

For ethical purposes**,** an authorization for research to access the data was obtained from the Walden University Institutional Review Board with an approval code of 07-18-19-0496865**.** To maintain the security of the datasets, data for this study were downloaded and stored in a password-protected archival file and deleted after the investigation. To keep the threats of ethical issues at minimal, the Walden Institutional Review Board supervised the collection of data and ensure that this research study complies with all the university's ethical standards as well as U.S. federal regulations.

Summary and Positive Social Change Implications

Evaluating the quality of health care and promoting a culture of safety is crucial because it reveals how the healthcare organization is performing and leads to improved care. To better understand the impact of mergers and acquisitions for rural hospitals on quality performance, this brief examined four research questions.

With hospital mergers on the rise, organizations that invest in building active patient safety cultures stand to benefit. Understanding and properly implementing quality initiative, is essential to a well-functioning health system and is necessary for any practice interested in improving performance, patient safety, or clinical outcomes. In addition to identifying opportunities for quality improvement. and foster a commitment to excellence, a measure that carries substantial weight, as well as necessary implications about safety of care, is a hospital's mortality rate. Through the study results, I hope to support this commitment by helping health care leaders understand how reducing hospital mortality rates and eliminating PAEs can improve health care safety and the quality of care delivered to rural patients. While PSRs and CCDs in the U.S. rural hospital delivery services may vary widely when calculated systematically and categorized according to the level and type of care, patterns emerge that can highlight system defects. Although several studies have documented the need for U.S. hospitals to reduce inpatient mortality rates and PAEs, there is a scarcity of literature on effective methods to accomplish this goal. Therefore, this research study adds to the knowledge needed for policymakers to make decisions and establish a nationwide systematic process and develop a stronger culture of continuous quality improvement in RHMs.

In Section 2, I documented and presented the quantitative processes necessary to complete this correlational study. The conceptual framework of this study, study sample, and sampling procedures, including instrumentation, operationalization of constructs, and data collection strategy and management, were outlined and thoroughly discussed. In addition to the restating of research questions, data analysis plan, and the purpose of research design and how it could present meaningful results to the stakeholders of the industry was proposed. This section concludes with highlighting threats to internal and external validity, along with ethical concerns and procedures. My study results and findings will be discussed and interpreted in Section 3.

Section 3: Presentation of the Results and Findings

Introduction

The principal goal of this study was to examine the potential association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients post mergers. A secondary intent of the research was to enhance the understanding of the incidence of patient risks and clinical turbulence in RHMs as a basis to reduce them. Periodic exposure of potentially PAEs in rural communities might help public health departments identify emerging health problems, monitor known issues, and focus interventions on reducing excess mortalities in these areas (Moy et., 2017). In this correlational study, I focused on four aspects of organizational synergies: governance mechanism capabilities, change management complexities, clinical leadership, and system integration best practices. The governance mechanisms (i.e., controls, policies, and guidelines), hospital structures i.e., (care processes), clinical leadership (i.e., management cultures), and system integration best practices were examined to determine their relationship to the prevalence of clinical care turbulence and patient risks. Recent literature supports possible negative consequences from mergers and acquisitions, although not conclusively (see Hass et al., 2018), however, the potential health effects of mergers have received less attention in the literature than other significant organizational changes, such as health care profitability and cost cutbacks.

In this study, I employed the quantitative approach to describe PSRs and CCDs in RHMs. In this research study, I accurately assessed and examined the performance of

rural hospital alliances regarding structures, processes, and outcomes and evaluated the correlation between quality domains. I aspired to present an upgraded awareness of the strategies harnessed by developmental leaders in integrating processes to safeguard rural communities and promote a culture of safety excellence. In section 3, I discuss the data collection methods, data selection criteria, data analysis methodologies, and a summary of the analytical results.

The potential clinical consequences, PSRs, and outcome quality measures were the dependent variables. Different structural factors and organizational synergies consisting of new settings for providers, uncharacteristic system integration practices, institutional relationships, governance mechanisms, and new patient populations served as co-variables potentially associated with process and outcome measures. The RHMs and the facility characteristics were the independent variables. A benchmark evaluation of strategic controls, financial measures, and operating performances, as well as gaps and regulatory requirements, were also included in the study as covariates because the attributes are related to hospital quality performance competencies. (see Haas et al., 2018). To further understand the areas of risks in RHMs, I utilized these structure-process-outcome independent and dependent variables to address the following research questions and associated hypotheses.

RQ 1: Is there an association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients?

H01—There is no association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients.

Ha1—There is an association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients.

RQ2: What is the relationship between governance mechanisms and patient outcomes in rural RHMs?

H02—There is no relationship between governance mechanisms and patient outcomes in RHMs.

Ha2—There is a relationship between governance mechanisms and patient outcomes in RHMs.

RQ3: How do best practices facilitate quality-focused initiatives and contribute to eliminating unintended patient risks associated with structural changes and the process of care?

H03—Best practices do not facilitate quality-focused initiatives and do not contribute to eliminating unintended patient risks associated with structural changes and the process of care.

Ha3—Best practices facilitate quality-focused initiatives and contribute to eliminating unintended patient risks associated with structural changes and the process of care.

RQ4: What is the relationship between clinician leadership and the quality of care outcomes in RHMs?

H04— Clinical leadership in RHM and acquisition deals is not a significant predictor of quality of care outcomes.

Ha4—Clinical leadership in RHM and acquisition deals has a significant relationship with the quality of care outcomes.

In section 3, I discuss and present the core findings of this study as derived from the methods applied in gathering and analyzing the research data. In this section, I describe the data analysis and offer a summary of the answers to the research questions. An overview of the time frame, response rates, discrepancies of the data set with baseline descriptive logistic regression analysis, and demographic characteristics of the sample were also provided.

Data Collection of Secondary Data Set

To examine differences in performances of rural hospitals that have gone through mergers or acquisitions, I analyzed mortality data for U.S. rural residents from the NVSS and readmission hospital data from Hospital Compare Datasets throughout 2010 to 2018 (see Mack, Jones, & Ballesteros, 2017). The NC RHPRRC center that performs fundamental research in rural health care delivery matters and provides in-depth policy analysis to address social issues affecting rural populations, defined and characterized rural hospitals as facilities positioned in a non-metropolitan community (Health Resources and Services Administration, 2018). Utilizing data from NC RHRPRC and ILAs' Healthcare Mergers & Acquisitions reports collected from 2010 through 2018, I

identified a total of 380 rural hospitals that have merged or been acquired. Both NC RHRPRC and ILAs maintain a publicly available map for tracking and counting RHMs and closures. ILAs is the commanding developer of business literature in the senior housing and care and healthcare mergers and acquisitions markets, and it is the most extensive database capturing all publicly announced healthcare mergers dating back to 1993 with more than 26,000 transactions in 13 healthcare sectors (see Noles et al., 2015; Su, 2017).

I systemically evaluated hospital quality using metrics published in the Hospital Compare database collected by the CMS. Given the outcomes of care provided by health systems are of the most significant concern in the transformation to the evidence-based safety care model, I primarily focused on structure, process, and outcome measures of quality. In this study, I used routinely collected CMS outcome measures to calculate overall hospital quality. Inconsistent with the 2018 CMS star rating report, outcome measures were grouped into six categories weighted by importance: mortality, safety of care, readmissions, patient experience, effectiveness of care, and timeliness of care. To reduce the variability in these measures of quality, I combined the six separate outcome measures tracked by CMS into three composite outcome indices: one for mortality, one for readmission, and one that combined both mortality and readmission measures.

Regression Analysis Methodology

I performed a logistic regression analysis to determine hospital performance and safety level characteristics that were correlated with the likelihood of transformation changes in structures, processes, organizational culture, and values in RHMs. A streak of

multiple regression models was then utilized to establish if there were statistically significant variances in key hospital quality predictive indicators (i.e., PSRs and CCDs) post-mergers as compared to non-merged RHs. In this study, hospital factors, such as hospital governance effectiveness, critical hospital access status, best practices for hospital quality, clinical leadership, and hospital care systems were included to adjust systematic differences between RHMs and non-merged hospitals.

I categorized the performed regression analyses to evaluate the relationship between hospital performance safety measures into six quality indicators- mortality, safety of care, readmissions, patient experience, effectiveness of care, and timeliness of care. In these regression analyses, hospital organizational characteristics, such as hospital size, urban/rural location, ownership type, and teaching status were used as controls for factors that could influence this association and provide some specifics on whether the impact of acquisition might vary over time.

Mortality o Cancer mortality rate o Heart failure and Stroke -the cerebrovascular diseases mortality rate o Mortality rates for pneumonia (PN), Chronic lower respiratory diseases	20%
Hospital Readmissions o All causes readmission rate o PN and Influenza readmission rates o Heart failure (HF) and Stroke readmission rates o Hip/knee replacement readmission rate	20%
Effectiveness of Care o Preventive care (includes influenza vaccination measures) o Cataract surgery outcome o Blood clot prevention o Pregnancy and delivery care	20%

Safety of Care Outcomes (Hospital Associated Events). o Adverse Events-Infections o Diagnostic errors o Medication errors o Surgical complications	20%
Timeliness of care o Heart attack (HA) care o Emergency department care o Preventive care (includes influenza vaccination measures) o Cancer care o Use of medical imaging	10%
Patient Experience o Focused on quality, patent-centeredness, satisfaction, and other concepts o Patients rating services according to the quality of care they receive	10%

Figure 2. Quality-safety performance measures weighted by importance

Financial and operational performance measures weighted by importance

- Total profit margin
- Percentage of equity financing
- Medicare inpatient services
- Medicare outpatient revenue/total revenue

Study Results

In this analysis, using metrics published in the Hospital Compare database collected by CMS, I evaluated hospital performance relative to four common conditions and procedures, offering insight on the variation in clinical quality and outcomes across the country. My principal analysis included 380 RHM transactions and 4,964 control hospitals (for a total of 5,344 hospitals). The total sample of the study (shown in table 4) consisted of 19,671,254 hospital readmissions at 5,344 urban and rural hospitals across 50 states in the United States. Of that total 7,445,133 were readmissions in urban

hospitals, which accounted for 30.0% of the unplanned hospital readmissions (UHRs); 5,705,756 were in nonmerged hospitals, which accounted for 23.0% of the UHRs; and 11,655,365 were RHMs, which accounted for 47.0% of the UHRs respectively. A total of 380 (7.1%) were in RHMs, 2,569 (48.1%) were urban hospitals, and 2,395 (44.8%) were nonmerged facilities. The overall rate of cancer characteristics for RHMs was 3.9%, with a 1.8% difference (95% CI, 1.59% to 1.65%) compared to urban and nonmerged hospitals *(*$p < 0.01$*).* Both the rate gap for heart diseases and pneumonia in RHMs were higher 39.0%; and lower 2.4%, with a -0.6% difference (95% CI, -0.7% to -0.5%) and (95% CI, -0.8% to -0.6%) in comparison to urban and nonmerged hospitals ($p < 0.01$). The common deficient pattern for overall UHRs in RHMs in patient characteristics was observed as Black readmissions at 15.3% with a -8.6% difference (95%, -8.16% to -6.9%) compared to urban and nonmerged hospitals ($p < 001$). In comparison to the White population, between RHMs and nonmerged and urban hospitals on UHRs, both Hispanic and non-Hispanic (other) had a negative -0.4% difference (95%, -0.4% to 0.23%) and -0.27% difference (95%, -0.2% to -0.3%) respectively at ($P < .00$). Inconsistent with previous studies, the findings of the current study support the argument that RHMs are associated with modest deterioration of patient experiences, compromised quality of care, and significant changes in readmission rates. As seen in Table 4, the prevalence rate of chronic obstructive pulmonary disease (COPD) shows a 36.6% increase in urban hospitals, 2.5% lower for nonmerged hospitals, and 38.1% for RHMs, which is 1.5% higher. These statistics support that the rural U.S. citizens experience higher rates of UHRs and mortalities from COPD than residents living in more urban areas.

Table 4.

Comparison of Patient and Comorbidity Characteristics of Hospital Readmissions by RHMs 2010-2018.

Characteristics	Urban hospitals *n*=2569	Non-merged hospitals *n*=2395	RHMs *n*=380	Difference CI 95%
Hospital Admissions	7,445,133 (30%)	5,705,756 (23%)	11,655,365 (47%)	
Health issues				
Cancer	5.8	4.2	3.9	1.8(1.59 to 1.65)
Heart diseases	38.4	38.5	39.0	-0.6 (-0.7 to-0.5)
Pneumonia	3.6	2.5	2.4	-8.6 (-0.8 to-0.6)
COPD	36.6	2.5	38.1	0.81 (0.8 to 0.9)
Patient demographics				
Age, Mean	80.2 (8.6)	79.1 (8.4)	78.3 (8.3)	1.27(1.26 to 1.29)
SD/Y	59.2	58.3	57.1	3.08(3.0 to 3.3)
Black	8.1	10.2	15.3	-8.16(-8.3 to -6.9)
White	85.2	86.1	78.6	0.02(-0.02 to 0.03)
Hispanic	2.1	1.8	1.9	-0.4 (-0.4 to 0.23)
Other	2.5	2.3	2.2	-0.27 (-0.2 to -0.3)

Note. A positive confidence of interval (CI) at 95%-small or lower significant association of CCDs and PSRs on RHMs; a negative CI at 95%-higher or elevated association of the effects of RHMs. COPD represents chronic obstructive pulmonary disease and SD/Y represents standard deviation age per year

Table 5 depicts the examined Hospitals'30-day readmission rates for patients who had initially been evaluated for the following conditions: HF, PN, coronary artery bypass graft surgery, hip and knee replacement or chronic obstructive pulmonary disease. The analysis compared each hospital's reported readmission rate to national averages for each of the conditions to determine hospital performances. Six hospital performance measures which are consistently collected by CMS over the period: three measures of 30-day readmission rates for acute HA, HF, and PN and three measures of 30-day mortality rates for HA, HF, and PN were included in the study. To minimize the volatility in these measures of quality, I combined the six separate outcome measures tracked by CMS into three composite outcome indices: one for mortality, one for readmission, and one that combines both mortality and readmission measures. The CMS evaluates these trends in

measure results over time to monitor patterns, changes, and potential unintended consequences in the measurement results.

Table 5.

Multiple Regression Analysis for Changes in Performance Measure Composite Post Merger for Acquired Hospitals as Compared with Control Hospitals 2010-2018

Variable	Unstandardized	Coefficients	Standardized	Coefficients	
	B	*S. E.*	*Beta*	*T factor*	*Sig*
Performance quality measure (National Comparison)					
Safety of care	-.174	.033	-.156	-5.345	.000
Patient experience	.538	.055	.372	9.804	.000
Effectiveness of care	.086	.028	.104	3.120	.002
Readmissions	.523	.024	.609	21.771	.000
Mortality	.051	.041	.041	1.253	.209
Timeliness of care	-.024	.028	-025	-851	.395
CCD Composite	29.325	.00	.00	.00	.66
PSR Composite	44.974	.00	.13	.00	.16
Performance period	.				0.3
2010	4.465	0.5	0.2	12.6	0.4
2011	3.838	-0.4	-0.6	15.9	0.5
2012	3.806	0.8	0.4	23.1	0.1
2013	3.779	1.0	0.1	31.7	0.8
2014	4.132	-0.8	0.3	18.3	-0.9
2015	4391	0.00	0.4	0.615	0.6
2016	4.506	0.3	0.615	15.5	0.12
2017	3784	1.1	0.11	21.3	-0.4
2018	3.762	1.7		18.4	0.2
National comparison of hospitalization - Mortality					
Rural	166.6	0.1	0.1	0.1	0.9
Urban	195.3	0.3	0.3	0.2	0.4

Note. Sig= Significance $p < 0.01$, t-factor two-tailed; CI = confidence interval 0.95%, CCD = Clinical care disruptions composite, PSRs composite = Patient safety risks

Table 6 highlights the number of rated and unrated rural hospitals by CMS quality performance classification. Based on the usefulness of the quality star rating for comparing hospital quality and possible ways to reduce the PSRs and CCDS, the study assessed up to 90 quality measures that cover seven domains (mortality, safety of care, readmission, patient experience, effectiveness of care, timeliness of care and efficient use of medical imaging). Significantly, 1,300 total hospitals, which account for 73%, were not rated. Of the 85, which received a 5-star rating, only 27.1% of the rural hospital met the CMS qualifications compared to the urban hospitals which received a 72.9%. The data suggested that, on average, rural hospitals with weaker quality performance and elevated PSRs were negatively associated with the likelihood of the merger process.

Table 6.

Comparison of CMS Star Rated Category Percentage Ratio of Rural and Urban Hospitals in Each Quality Performance Classification 2017

Total No. Hospitals	Rural	Urban	CMS Star Rating
1,782	1,300 (73.0)	482 (27.0)	Not Rated (Missing)
85	23 (27.1)	62 (72.9)	5*****
939	418 (44.9)	517 (55.1)	4****
1,763	846 (48.0)	917 (52.0)	3***
668	167 (25.0)	501 (75.0)	2**
107	17 (16.0)	90 (84.0)	1*
5,344	2,771	2,569	

Note. From *Hospital Compare Data archive*, by CMS, 2017, U.S. Department of Health and Health Services, Baltimore, MD. (https://www.medicare.gov/hospitalcompare/Data/HCAHPS-Star-Ratings.html).

As seen in Table 7, the study analysis highlights the adjusted 30-day mortality rates for each dependent variable stratified by hospital size. The more significant the difference of each mortality rate among the sample of the hospitals, the higher the

chances of discovering statistical variabilities among the selected hospitals. Significant variations were detected among RHMs, for-profit, and nonprofit hospitals. Among small hospitals [≤ 99 Beds], the overall 30-day death rate was 9.9% of the total hospitalizations for RHMs, 9.5% of the total hospitalizations for-profit hospitals, and 9.3% of the total hospitalizations for for-profit hospitals with a 0.4% difference (95% CI, 0.1% to 0.7%). For medium hospitals with bed count between 100 and 399, the overall 30-day death rate was 8.6% of the total hospitalizations for RHMs, 9.3% of the total hospitalizations for nonprofit hospitals, and 9.4% of the total hospitalizations for for-profit hospitals with a 0.8% difference (95% CI, 0.4% to 1.3%). Among the large hospitals with 400 bed count or more, 9.3% was accounted for the overall 30-day death rate for RMHs, 8.9% was accounted for the overall 3.-day death rate for nonprofit hospitals, and 9.1% was accounted for profit hospitals with a 1.2% difference (95% CI, 0.9% to 1.5%) at $p < 0.01$, and the outcome differences were statistically significant by RHMs for the overall hospitalizations in this size category. Of the 380 RHMs compared to the 3,664 for-profit and 1,300 nonprofit hospitals, there were modest differences in both surgical procedures and all medical conditions.

Differences in the structure and process of care between RHMs (for-profit and nonprofit) and urban (nonprofit and for-profit) hospitals may also be a cause for the increased morbidity rates in RHMs. Typically, rural hospitals face unique challenges compared to other, more extensive facilities, with most pressing issues of coordinating and managing care. High volume patient turnover, workforce shortages, and an aging infrastructure that institution stakeholders do not always have the resources to update.

Besides, rural hospitals are often geographically isolated, which further limits these health systems easy access to resources. These unique complex challenges of care and continually changing processes of care and culture may create conditions in which complications, particularly infections, occur more frequently. Hence, the increased mortality and hospitalization rates observed in certain circumstances and operations in RHMs in this study might be due to the characteristics of patients, and not necessarily because mergers compromised the processes in the rural hospitals

Table 7.

Correlation of Between Adjusted 30-Day Hospital Readmissions and Rural Health System Status by Health System Type 2010-20182010-2018

	Total admissions	Rural hospital mergers *n*=380	For profit hospital *n*=3,664	Nonprofit hospitals *n*=1,300	Difference (95% CI)	P value
Small hospitals (≤99 Beds)						
Cases	2,543,802	20,596,115 (9.9)	261,879 (9.5)	2,281,923 (9.3)	0.4 (0.1 to 0.7)	.01
Comorbidity	1,462 201	860,064 (11.9	143,325 (11.3)	458,818 (7.8)	0.5 (0.1 to 0.9)	.01
Surgical cases	77,779	36,050 (7.8)	9,605 (3.5)	32,144 (3.8)	0.3 (-0.1 to 0.7)	.018
Medium hospitals (100-399 Beds)						
Cases	11,802,681	461,010 (8.6)	4,083,475 (9.3)	7,258,196 (9.4)	0.8 (0.4 to 1.3)	.003
Comorbidity	5,986,284	201,184 (11.3)	2,015,603 (11.8)	3,769,497 (11.8)	05 (0.04 to 1.0)	.012
Surgical cases	496,611	20,614 (3.6)	182,446 (4.0)	293,551 (4.2)	0.6 (0.2 to 0.9)	.011
Large hospitals (≥400 Beds)						
Cases	7,105,341	3,122,215 (9.3)	2,869,375 (8.9)	1,113,751 (9.1)	1.2 (0.9 to1.5)	.001
Comorbidity	3,171,715	1,276,866 (11.0)	1,348,310 (11.6)	546,539 (12.0)	1.0 (0.6 to1.4)	.001
Surgical cases	334,814	144,976 (3.2)	140,154 (3.6)	49,684 (3.8)	0.7 (0.4 to 0.9)	.001

Note. Standard errors. $p < 0.01$, $p < 0.05$, $p < 0.1$. A positive p-value indicates statistically moderate/strong quality level association and a negative p-value signifies weak association on performance quality level.

A Pearson regression (PC) coefficient analysis was conducted to determine the correlation strength and direction between the continuous variables and the dependent variable from the study sample (n = 5,344). Table 8 depicts the results of the PC indicating a significant moderate positive relationship between all 30-day mortality

categorical and organizational synergies complexity characteristics. Hospital governance effect (HGE) ratio (r = -733, p = .005); critical hospital access status (CHAS) ratio (r = .238, p = .000); hospital integration best practice (HBP) ratio (r =.476, p = 0.01); clinical leadership effect (CL) ratio (r = .430, p =.570), structural hospital care systems (SHCS) ratio (r = .029, p = .0.01).The statistical analysis portrays the correlation of hospital performance and safety level characteristics with the likelihood of transformation changes in structures, processes, organizational culture, and values in RHMs.

Table 8.

Pearson Regression Coefficients of Organizational Synergies Complexity Between All Categorical 30-Mortality Rate and Continuous Variables on RHMs

Source	No. of Hospitals (n)	*R*	*P*
HGE (Hospital Governance Effect)	5,344	-.733	.005
CHAS (Critical Hospital Access Status)	5,344	.238	.130
HBP (Hospital Integration Best Practices)	5,344	.476	0.02
CL Ratio (Clinical Leadership Effect	5,344	.430	.570
SHCS (Structural Hospital Care Systems)	5,344	.029	.0.01

Note. n=Total number of hospitals; r= Pearson correlation coefficient; Sig= Significance $p < 0.01$, t-factor two-tailed.

In the analysis and based on the significance of the overall regression, organizational synergies complexities (i.e., change management, governance mechanisms, system integration best practices, and the clinical leadership) were assessed to determine its impact on CCDs and PSRS due to RHMs. Statistical analysis, as shown in Table 9, indicated that the effects of organizational complexities were significantly

predictive of changes in hospital performance ($p < .001$). The findings indicated that much of the increase in the likelihood of transformation changes in structures, processes, organizational culture, and values corresponded with the effect ratio of organizational complexities. These results implicate not only patient care but ratings to rural hospitals, which may be subject to the CMS unplanned readmission penalty for higher-than-expected 30-day readmission rates. Further, the findings from the study suggest that hospital mergers may be related to impaired quality of care delivered at acquired facilities, which fail to use performance indicators to support internal quality management.

Table 9.

Logistic Regression Analysis of Organizational Synergies Complexity on Effectiveness Hospital Integration (Merger Process)

	Unstandardized Coefficients		Standardized Coefficients		
	B	*S.E.*	*Beta*	*t*	*Sig*
HGE ratio	-.029	.425	-.069		.945
HBP ratio	.549	.034	.367	16.210	.000
SHCS ratio	.373	.020	.089	18.460	.000
CHAS ratio	.081	.024	.089	3.329	.001
CL ratio	.024	-.079	.435	4.365	.002

Note. Dependent variables (mortality national comparison and hospital performance) were used in the analysis.

Table 10 presents the results of the means for the calculated clinical quality and safety scores, the predicted possible scores per CMS, the gaps, and the percentage gaps. On average, 380 RHMs included in the study sample had a greater than 16.9% gap on most of seven hospital performance and safety measures. Safety composite measure highlights the highest average percentage gap of 42.65 on catheter-associated urinary

tract infection (CAUTI), followed by clinical care domain-PN 30-day mortality rate with 24.35%. Although, other the performance measure variables show lower percentage gaps in both the clinical care domain (CCD) and safety domain scores (SDS), the predictors were statistically significantly correlated to at least one organizational synergies complexity (i.e., change management, governance mechanisms, system integration best practices, and the clinical leadership) due to effects of RHMs.

Table 10.

Clinical Care Domain Estimates and Quality Gaps in Deaths by 30-Day Mortality and Hospital Unplanned Readmissions Rate in RHMs.

	Calculated score identified (X*)		Predicted score (X**)		Score difference (X*-X**)		Score gap %	
	Mean	*S. E*	*Mean*	*S. E*	*Mean*	*S. E*	Mean	*S. E*
Clinical care domain (CCD)								
Acute myocardial infarction (AMI) 30-day mortality rate	11.09	1.65	10.64	0.56	0.45	1.09	4.06	13.74
Heart failure (HF) 30-day mortality rate	11.56	1.96	9.78	0.61	1.78	1.35	15.40	14.76
Pneumonia (PN) 30-day mortality rate	1.15	0.28	0.87	0.03	0.28	0.25	24.35	25.08
Safety domain scores (SDS)								
Surgical site infection (SSI)	0.75	0.08	0.65	0.03	0.1	0.05	13.33	15.35
Catheter-associated urinary tract infection (CAUTI)	0.68	0.15	0.39	0.06	0.4	0.09	42.65	11.65
30 -Day Unplanned Readmissions (PN)	25.09	2.39	23.93	1.05	1.16	1.34	4.62	5.82
30-Day Unplanned Readmissions (HF)	19.35	1.83	16.68	0.69	2.67	1.14	13.80	6.73

Note. (X*-X**)/X*100= Gap quality percentage, X* is Calculated score and X** is Predicted score and S.E. represents standard error percentage

Statistical Analysis

Four research questions were staged to address the problem that had not been thoroughly reviewed in the past decade on RHMs literature. Each issue was assumed to support previous studies' proposition that the problem is more research is needed to outline the neglected relationships of RHMs on rural communities. As presented in Section 2, these four research questions serve as the basis for this study's research, design, and analytic, and are as follows:

RQ 1: Is there an association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients?

A Pearson regression model resulted in the null hypothesis being rejected. It indicated that much of the increase in the likelihood of transformation changes corresponded with the effect ratio of organizational complexities. This study suggests that RHMs may be associated with impaired quality of care, clinical care turbulence, and PSRs escalation. The model was statistically significant at $p < 0.01$, which means the results suggested the alternative hypothesis (Ha1) failed to be rejected, and there was no support for the null hypothesis (*H01*).

RQ2: What is the relationship between governance mechanisms and patient outcomes in rural hospital mergers?

Hospital governance effect ratio displayed a weak association matrix result of (r = -.733; $p < .005$). The model revealed hospital governance effect ratio had a weak correlation between all 30-day mortality categorical and organizational synergies

complexity characteristics, and yet significant predictor to PSRs and CCDs in RHMs. However, the model was statistically significant ($p < .005$), and the results demonstrated that there was no enough support not to reject the alternative hypothesis (*Ha2*).

RQ3: How do best practices facilitate quality-focused initiatives and contribute to eliminating unintended patient risks associated with structural changes and the process of care?

Hospital integration best practices was a relevant predictor of quality-focused initiatives in eliminating unintended PSRs and CCDs in RHMs. Hospital integration best practices effect ratio represented a correlation matrix results of ($r = .367$; $p < .000$). In this model, results suggested the alternative hypothesis (*Ha3*) failed to be rejected, and there was no support for the null hypothesis (*H03*).

RQ4: What is the relationship between clinician leadership and the quality of care outcomes in RHMs?

Clinical leadership was a significant predictor of the quality of care in RHMs. Clinical leadership ratio displayed a correlation matrix results of ($r = .435$; $p < .002$). At $p < .002$, the study results revealed an alternative hypothesis (*Ha4*) failed to be rejected, and there was no substantial support for the null hypothesis (*H04*).

The association between total hospitalizations, mortality rates, and currently RHMs (nonprofit and for-profit hospitals) had a positive effect relationship and in both surgical procedures and all medical conditions were statistically significant ($p < .01$) by RHMs for the overall hospitalizations in this size category. In addition to substantial variations in hospital performance profiles which were detected among 380 RHMs (for-

profit, and nonprofit hospitals) with a mean annual hospitalization on medical conditions at 95% confidence level, had higher than expected mortality rates for all metrics of 27.8% in total, which had a higher odds of poor hospital performance than nonmerged hospitals.

Summary

Unsafe healthcare has always remained one of the challenges of the U.S. healthcare delivery system and a well-recognized health issue, usually listed among the top three causes of deaths in the United States with rural residents experiencing more significant hardship (NC RHRPRC, 2014). Declines in hospital performance in the quality of care have been associated with more frequent mortality and hospital readmission rates. Several mergers are consummated to capitalize on new geographic or demographic markets, expand product offerings, facilitate the acquisition of critical employees, boost productivity, reduce competition by absorbing a rival company, or even more long-term strategies (Botje et al., 2016). Amid the need to maintain such a competitive advantage, healthcare administrators must perform the intricate task of keeping pace with the robust healthcare environment – continually changing patient volumes, increasing supply costs and quality requirements, personnel shortages, and utilization standards. Regardless of the motive, the process and outcome must be measured to assess, identify, and eliminate the root causes of poor performance during and after the transition.

While the findings of the study revealed modest differences in the overall risk of hospital readmissions and 30-day mortality rates among rural versus urban hospitals, it did find that the location of the hospital and its acquired characteristics have a significant

effect on performance and patient safety levels. The study suggests that patients discharged from hospitals in large RHMs had a 29.3% higher risk of unplanned readmissions as compared to those released from for-profit and nonprofit urban hospitals. Concurrently, the study found that patients treated at merged rural hospitals have an average 8.5% higher risk of dying or experiencing one or more complications during a hospital stay than if they were treated at nonmerged hospitals in that procedure or condition. These findings further confirm the need for critical evaluation of commonly known arguments that integrating health systems improves efficiency, access to care, and quality of care, and may lower costs. Although integrating health systems may result in financial and operational efficiencies, declines in health outcomes should be avoided. My findings present an opportunity to identify systemic reasons for the higher PSRs and CCDs observed in common medical conditions and after certain operations in RHMs. The statistical analysis results revealed that all four null hypotheses could be rejected, indicating that organizational synergies complexities represented by logistical differences among RHMs all showed the trajectory persisted pattern of CCDs and PSRs. Section 4 will discuss and present a detailed synthesis of my study's application to professional practice, gaps in research, limitations and implications for social change. This section will also list recommendations of the study and suggestions aimed at improving future research in light of these study findings.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

As healthcare systems deal with the complex regulatory demands of the quality improvement and quality control of healthcare, as well as the challenges of a shrinking economy, there is always the possibility that one facility will merge with another. Maintaining a hospital or health system is costly and combining health systems can help counterbalance some of the financial burdens; however, those mergers may trigger more than just performance dilemma. In the long term, hospital affiliations might cause an upheaval of clinical disruptions and impact quality of patient care (see Hass et al., 2018) Because RHMs often bring about changes in patient populations, activities adjustments, and facility infrastructure, safety risks may increase.(see Jennings et al., 2008; Johar et al., 2014). Researchers have identified these most pressing patient safety concerns that may occur during mergers or system expansions to play a significant role in high mortality rates and poor patient outcomes (Hass et al., 2018; Noles et al., 2015). The burden affects nearly 60 million people who reside in rural counties across the United States, resulting in over 440,000 deaths yearly, and many of these PAEs are avoidable using system-oriented shared safety culture (CDC, 2017).

Adjustments of therapeutic activities proposed by leadership, down-sizing, redistributions of staff, conflicting cultures, location changes, new settings for providers and hospital structure fragments may all have unforeseen effects (Berg & Grimeland, 2013). Even though hospital mergers typically have several positive goals, arguments in favor of a merger must be investigated carefully for idealistic oversight of the prevalence

of PSRs and CCDs of RHMs. In many cases, teams with narrow proficiency in patient safety are typically responsible for implementing healthcare mergers, acquisitions, and affiliations (AHRQ, 2018). Considering these issues, the primary objective of this study was to examine the potential association of healthcare transformation changes in structures, processes, organizational culture, and values on clinical outcomes for rural patients post mergers. The focused intent of the study was to enhance the understanding of the incidence of patient risks and clinical turbulence in RHMS as a basis to reduce them.

In this quantitative analysis, I focused on hospital performances and quality outcomes on RHMs and acquisitions that occurred between 2010 and 2018. Regression analyses were conducted to examine the association between hospital performance safety metrics that were categorized into the following six quality indicators: mortality, safety of care, readmissions, patient experience, effectiveness of care, and timeliness of care. I used hospital organizational characteristics, such as hospital size, urban/rural location, ownership type, and teaching status as controls for factors that could influence this association and provide some specifics on whether the impact of acquisitions might vary over time. Publicly available data used in the study were from Medicare Mortality Ratings Databases, the U.S. NVSS archives, Hospital Compare, Hospital Evaluation Databases and hospital quality indicators from the CMS.

Interpretation of Findings

I proposed a theoretical lens for understanding and evaluating complexity in integrating healthcare systems based on degrees of uncertainty and the involuntary nature

of many change processes and cultural clashes (see Resta, Sonnessa, & Tànfani, 2017). Considerable concerns have been highlighted for why transformational changes, like mergers and acquisitions, often lead to adverse health effects and increased CCDs. Undoubtedly, systematic problems in clinical care turbulence are at the root of most detrimental events that arise post mergers. Amid such complex mechanical and organizational changes, the upheaval accompanying restructuring efforts through mergers can also be related to lower job satisfaction among clinicians and increased burnout. Furthermore, increased conflict fueled by differences between merging entities relating to unique operation systems, mission, and values, often makes clinicians feel more uncertain about their responsibilities, what is expected of them, and how the changes will affect their patients.

The findings of this study highlight that RHMs have a significant effect on increased mortality and declined health status in U.S. rural communities, showing a catastrophic inequality burden emerging as a significant determinant of the health of populations. The results indicate that mergers have a particularly significant effect on PSRs during and after the consolidation taking place. Previous studies have reported that healthcare mergers result in a more extensive health system offering financial incentives to smaller hospitals, including upgrades to supplies and equipment; protocols, and information technology, such as electronic patient records and security systems (Hass et al., 2018). However, in the present study, I found that these changes in infrastructure often create challenges for clinicians, and without planning, such changes can cause significant patient risk. Because of the seriousness of long-term, disruptive work

environment and the high prevalence of clinical risks, RHMs have a substantial effect on socioeconomic burdens, prolonged delays in treatment, and patients often experience travel and distance barriers to get care. Managing the process of a merger better should lead to a more cautious approach to the likely gains, provide an understanding of the problems that are likely to arise in the period of change, and anticipate and avoid harmful consequences.

Contrary to the findings of the Charles River Associates Report that mergers have become one of the critical means through which hospitals can provide their communities with high-quality, convenient, and cost-effective care by allowing hospitals to create connected networks of care (see Noether, May, & Stearns, 2017). This study revealed the primary impetus is often financial rather than clinical. RMHs can have substantial effects on clinical care and patient safety, particularly when clinicians encounter changes in their practice setting, patient population, or infrastructure. Routine tracking of potentially excess mortality and admission rates from the various causes of risk in rural and urban areas might assist public health officials in monitoring substantial rural health disparities and selecting effective programs and policies to improve the health of residents of rural areas. With the increasing trend of RHMs not slowing down, rural patients will require these data to compare the service they receive from merging different hospitals. Such findings should, therefore, be increasingly made more accessible to the public.

Limitations of the Study

I identified a few limitations concerning this quantitative study. The principal limitation of this study is that data collected on Hospital Compare comes from hospitals

that discretionarily offer their data for public reporting, so it is possible that there was a systematic scoring bias in hospitals' performance reporting across all measures (see AHRQ, 2016). Although this data set contains hospital-specific performance on the process of care quality measures and patient experience of care measures for over 4,500 hospitals, such a data set is vulnerable to the incompleteness of reporting. Its vulnerability lies in the fact that hospitals can designate to submit data for all the quality indicators or can elect to withhold the data from display on Hospital Compare if specific core measure scores were particularly weak. However, CMS star rating reports have been used broadly for hospital quality benchmarking, including analyses of the diagnoses used in my study, and such benchmarking is valid compared with clinical data and large administrative data sets. To include as many hospitals in my analyses and to reduce the variability in these measures of quality, I combined the six separate outcome measures tracked by CMS into three composite outcome indices: one for mortality, one for readmission, and one that combined both mortality and readmission measures.

Secondly, the precision with which hospital performance can be ranked is impacted by variations in hospital capacity, the class of subjects they care for, and sampling strategies, (i.e., the numbers of patients used to calculate reported performance rates from the quality measures). The only process of care measures applied to compute rankings consists of one comprehensive prevention measure and mechanism of care measures from six clinical topic areas: mortality, safety of care, readmissions, patient-centered score, effectiveness of care, and timeliness of care. Even within these specific clinical areas, they reflect only a portion of the hospital performance score rankings.

However, despite limitations (i.e., lack of clinical detail, susceptibility to patient bias and health literacy levels., time lags, and variations reporting systems), quality improvement experts view public data as a possible and valuable source to evaluate hospital quality performance.

To neutralize the severity of these data constraints, I used other data sources that can provide information about healthcare quality in this study. Publicly available Medicare Mortality Ratings Databases, Walden University Library databases, and Hospital Evaluation Databases were used to assess whether the toll of specific mortality diseases is worsening or decreasing, and to understand where best to target medical interventions so they can play a critical role. Recognizing these limitations, I believe the merits of the public data set outweigh many of these concerns and that it enabled a robust, timely analysis of clinical outcomes with a validated data source and was highly relevant to assessing the effects of the RHMs (see Loehrer, Chang, & Scott, 2018). Specifically, ratings, such as Hospital Compare and CMS quality reporting measures, as well as other sources included in the study, such as AHA reports, strengthen accountability and offer differing arrays of performance measures that may induce hospitals to improve their quality of care.

Gaps in Research

The findings of this quantitative study have shown the need for better planning, and critical consideration in many areas of measure of success that can identify and verify practices that improve safety in RHMS and that before strategic hospital merging arrangements can be pursued, significant gaps in knowledge must be filled. Clear

recognition is needed in all three of the domains of patient safety areas identified: poor outcomes of care due to PAEs, structural enablers to unsafe care, and disruptive processes of care that lead to safety risks. In this era of closer scrutiny of cost and quality of care, the field of hospital consolidation lacks actionable and outcome-oriented measures in this area.

In this respect, understanding the true needs of the affected rural patients generates an impetus for much fundamental work with integrating health systems and their representatives in order to transform the present situation. However, lack of methodological uniformity in the identification and measurement of PAEs, including mismatch cultures and weak evidence-based best practices related to quality management, continues to delay the development of knowledge about which interventions should be adopted and how to encourage adoption of patient safety practices.

Recent studies have examined the effects of changes in the health care market segment on healthcare organization performance due to hospital merger expansions. These studies have confirmed that the pursuit of economies of scale and coordinated care initiatives have led to the escalation of price competition among hospitals and that price competition has resulted in lower rates of cost growth, lower prices and price-cost margins, and changes in the adoption and use of technology (Haas et al., 2018; Loehrer, Chang, & Scott, 2018; Noles et al., 2015). However, the effects of changes in health structure on the quality of care provided by hospitals after a merger are less well understood, and this complex changing environment lacks functional and outcome-

oriented measures in this area. In this study, I offer tactical recommendations for future measure performance and endorsement to close this vital gap. The study recommendations can be instrumental in organizing measure development efforts to ensure that clinical, financial, and human resources are strategically targeted during the transition and post merger phase.

Recommendations

As found in this study, the U.S. hospitals have been merging at a rapid pace for more than 2 decades, forming influential organizations that have been creating countless long-term, challenges for clinicians and significant PSRs. The current understanding of the extent of CCDs and PSRs in RHMs and in their causes are underestimated. This is especially true for rural hospitals and those with integrating systems in transition, where most of the U.S. rural population lives and receives health care from. There are even substantial gaps in our knowledge about how to minimize the PSRs and address clinical turbulence in RHMs, often brought about by changes in patient populations, activities adjustments, staff distributions, and facility infrastructure.

Although some strategies have been developed, the U.S. health services know little about how to address many of the problems identified. Adopting and implementing patient-centered strategies to improve the patient safety culture model will be the first step. Presently, potential or actual adverse events (e.g., mortality rates and hospital readmissions) are substantially underreported, and healthcare organizations will require the identification of specific areas where system complexities slow or inhibit progress and the development of solutions geared toward overcoming impediments and failures

(IOM, 2011). Achieving this objective will require that healthcare administrators and developmental business leaders become aware of patient-centric and embrace value-based healthcare practices when entering consolidations.

Aiming at the efficiency build up and focusing on strengthening capacity for patient safety initiatives, various steps must be taken to foster a complete successful patient safety culture model in RHMs. A few of the most critical areas to consider when constructing an operational efficiency for merging health systems include a clear leadership structure, system-oriented shared safety culture, commitment to the standardization of clinical best practices, and well-defined ground-level integration strategy. Given the many variables and catalysts influencing the systematic change in U.S. rural hospital delivery services, careful planning, thorough due diligence, and strategic integration post transaction can simplify the process to overcome poor patient outcomes stem from systemic failures in the delivery of care.

Previous research suggests that organizational culture affects the success of post-merger integration and clinical collaboration (Ovseiko, Melham, Fowler, & Buchan, 2015). A further increasing body of literature advocates that rural hospitals often lack the necessary means to adopt patient safety strategies commonly found in more extensive facilities due to organizational, technological, staffing, and financial constraints (Coburn, & Gage-Croll, 2011). This research, however, aims to provide a framework for attaining the full benefits of a merger — operational efficiencies, economies of scale, organizational performance and enhanced clinical value.

Research advocates that many mergers or consolidations do not go according to plan or fail to achieve the expected outcomes, and culture is often the driver of such failure. Although there are innumerable factors that can lead to merger and acquisition failure, cultural mismatch is one of the mentioned reasons. To overcome the risk of failure, the integrating health systems must focus on understanding and developing the new entity safety culture. While overcoming barriers of learning may take several years, experts in merger and acquisition deals suggest that leaders from the acquiring facility should consistently and frequently articulate the mission and goals of the transaction. From the expansive view of mission statements to the fine details of daily schedules, communications should focus on supporting integration efforts and building the foundation for a typical patient safety culture between the organizations. By incorporating this approach, developmental leaders could help ensure that RHMs go according to plan and achieve their desired results.

Further research is recommended to help healthcare organizations understand and quantify patient safety events and areas of vulnerability in their institutions post mergers. It is feasible that gaining a better understanding of the systemic factors that combine in unanticipated ways and threaten patient safety may also help to shape a successful hospital alliance. While the study outlined a measure of success in identifying and verifying practices that improve safety, more work is required in authenticating how best practices get executed and amalgamated into clinical processes, and in corroborating, there is a full and continual commitment to providing the safest care possible. Finally, I recommend this study be expanded to hospital mergers in U.S. metropolitan areas to

ensure this commitment does exist throughout the continuum of care. In addition to evaluating hospital performance differences post mergers, future investigators will have the potential to provide more insight regarding the motive behind mergers and acquisition transactions among rural hospitals.

Implications for Professional Practice and Social Change

Professional Practice

As health systems struggle amidst regulatory changes, short cut in Medicare and Medicaid payments and shrinking profits, a merger can seem like precisely the cure-all needed to ensure survivability. Owing to this preposition, rural hospitals are attractive targets, and the trend of RHMs is likely to continue. Given the critical need for health services and obstacles to access to care of rural citizens in the United States faces, it is particularly important to understand any impact to the community caused by these monumental transactions. Despite the benefits of the mergers and acquisitions, patient care and safety must be prioritized both during and after the transition. Studies of this kind are essential to set a foundation of a proactive, purposeful and sustained patient safety model which includes integrating cultures into the organization and deploying best-practice merger and acquisition project management techniques and aligning executive and functional leadership.

Policymakers and developmental business executives must understand that integrating two or more organizations into one cohesive operating unit takes intense planning and a focus on post merger logistics. Inherent in that melding necessary steps are cultural assimilation, process communication, technology, and system integration.

Understanding these tasks and being aware of potential correlations that exist potential in healthcare transformation changes in structures, processes, organizational culture, and values on PSRs and CCDs for rural patients after mergers, could facilitate healthcare executives to identify high-level strategies on quality improvement. By studying quality indicators carefully in RHMs and raising institution awareness of efforts to reduce inpatient mortality and PAEs in underserved communities, I hope to have provided a holistic view into long-term implications and other operational community factors.

Positive Social Change

With hospital mergers on the rise, organizations that invest in building active patient safety cultures stand to benefit. Understanding and properly implementing quality improvement initiative is essential to a well-functioning health system and is necessary for any practice interested in improving performance, patient safety, or clinical outcomes. In addition to identifying opportunities for quality improvement, foster a commitment to excellence, a measure that carries significant emotional weight, as well as essential implications about quality of care, is a hospital's mortality rate. Through this study results, I hope to support this commitment by helping health care leaders understand how reducing hospital mortality rates and eliminating PAEs can improve health care safety and the quality of care delivered to rural patients. While PSRs and CCDs in the U.S. rural hospital delivery services may vary widely when calculated systematically and categorized according to the level and type of care, patterns emerge that can highlight system defects. Although several studies have documented the need for U.S. Hospitals to reduce inpatient mortality rates and PAEs, there is a scarcity of literature on effective

methods to accomplish this goal. Therefore, this research study adds to the knowledge needed for policymakers to make decisions and establish a nationwide systematic process and develop a stronger culture of continuous quality improvement in RHMs.

Conclusion

Several recent articles cited RHMs may affect the delivery of quality of care and shrink the availability of services as hospitals work toward greater efficiency in cost control (National Rural Health Association, 2015). When financial performance becomes the goal, fragmentation of productive tasks, down-sizing, redistributions of staff, conflicting cultures, location changes, new settings for providers, and hospital structure fragments may all have unforeseen effects. All these factors affect a community and play a significant role in the prevalence of mortality, hospital readmission rates, and complex clinical disruptions. Whether the primary driver of a merger is the pursuit of economies of scale, the ability to decrease unit costs or improve productivity and outcomes through increased volumes, there is a problem with the quality, efficiency, and patient safety in the U.S. rural healthcare delivery, mainly related to RHMs (CDC, 2017; NC RHRPRC, 2014; Unger et al., 2018).

The examination of processes provides the critical information that can be acted upon, establish strong relations between structures and outcomes, and promote strategic collaborations among integrating systems. Minimizing PAEs requires a greater understanding of the causes of these events, especially in merging entities. As such, this study provides a framework for policymakers to identify critical aspects of patient safety and eliminate the structural features of health systems and the processes of care that lead

to adverse events. Given the recent emphasis on planning patient safety improvement interventions targeting rural hospitals, I recommend more research is needed on patient safety in those circumstances. In particular, the study findings justify the urgent development of interventions designed to reduce the episode of unsafe healthcare experienced by rural patients after mergers.

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